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OR, A
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AND
MISCELLANEOUS LITERATURE;

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ENCYCLOPÆDIA BRITANNICA.

R A N

Rana.

RANA, the frog, in zoology; a genus belonging to the order of amphibia reptilia. The body is naked, furnished with four feet, and without any tail. There are 17 species. The most remarkable are,

1. The temporaria, or common frog. This is an animal so well known, that it needs no description; but some of its properties are very singular.

Its spring, or power of taking large leaps, is remarkably great, and it is the best swimmer of all four-footed animals. Nature hath finely adapted its parts for those ends, the fore members of the body being very lightly made, the hind legs and thighs very long, and furnished with very strong muscles.

While in a tadpole state, it is entirely a water animal; the work of generation is performed in that element, as may be seen in every pond during spring, when the female remains oppressed by the male for a number of days.

The work of propagation is extremely singular, it being certain that the frog has not a *penis intrans*. There appears a strong analogy in this case between a certain class of the vegetable kingdom and those animals; for it is well known, that when the female frog deposits its spawn, the male instantaneously impregnates it with what we may call a *farina fecundans*, in the same manner as the palm-tree conveys fructification to the flowers of the female, which would otherwise be barren.

As soon as the frogs are released from their tadpole state, they immediately take to land; and if the weather has been hot, and there fall any refreshing showers, you may see the ground for a considerable space perfectly blackened by myriads of these animalcules, seeking for some secure lurking places. Some philosophers, not giving themselves time to examine into this phenomenon, imagined them to have been generated in the clouds, and showered on the earth; but had they, like our Derham, but traced them to the next pool, they would have found a better solution of the difficulty. See *Preternatural RAINS*.

As frogs adhere closely to the backs of their own species, so we know they will do the same by fish.—Walton mentions a strange story of their destroying pike; but that they will injure, if not entirely kill carp, is a fact indisputable, from the following relation. Not many years ago, on fishing a pond belonging to Mr Pitt of Encomb, Dorsetshire, great numbers of the carp were found each with a frog mounted on it, the hind legs clinging to the back, and the fore legs fixed in the corner of each eye of the fish, which were thin and greatly wasted, teized by carrying so disagree-

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able a load. These frogs Mr Pennant supposes to have been males disappointed of a mate.

The croaking of frogs is well known; and from that in fenny countries they are distinguished by ludicrous titles: thus they are styled *Dutch nightingales*, and *Boston waites*.

Yet there is a time of the year when they become mute, neither croaking nor opening their mouths for a whole month: this happens in the hot season, and that is in many places known to the country people by the name of the *paddock moon*. It is said, that during that period their mouths are so closed, that no force (without killing the animal) will be capable of opening them.

These, as well as other reptiles, feed but a small space of the year. The food of this genus is flies, insects, and snails. Toads are said to feed also on bees, and to do great injury to those useful insects.

During winter, frogs and toads remain in a torpid state: the last of which will dig into the earth, and cover themselves with almost the same agility as the mole. See *PHYSIOLOGY*, n° 48 and note (B), and n° 52.

2. The esculenta, or edible frog, differs from the former, in having a high protuberance in the middle of the back, forming a very sharp angle. Its colours are also more vivid, and its marks more distinct; the ground colour being a pale or yellowish green, marked with rows of black spots from the head to the rump.—This, and (Mr Pennant thinks) the former, are eaten. He has seen in the markets at Paris whole hampers full, which the venders were preparing for the table, by skinning and cutting off the fore-parts, the loins and legs only being kept; but his strong dislike to these reptiles prevented a close examination into the species.

3. In the country of Pennsylvania, and some other parts of North America, there is a very large species of frogs called the *bull-frog*, or *rana ocellata*. Their irides are of a dusky red, surrounded with a yellow ring. The auricles are covered with a thin circular skin, which forms a spot behind each eye. They have four toes on the fore-feet, and five palmated toes behind. Their colour is a dusky brown, mixed with yellowish green, and spotted with black. The belly is yellowish, and faintly spotted. These make a monstrous roaring noise like a bull, only somewhat more hoarse. Their size is superior to that of any other of the genus, and they can spring forward three yards at a leap. By this means they will equal in speed a very good horse in its swiftest course. Their places of abode are ponds, or bogs with stagnant water; but they never frequent streams. When many

A

of

Rana.

of them are together, they make such a horrid noise, that two people cannot understand each other's speech. They croak all together, and then stop for a little and begin again. It seems as if they had a captain among them: for when he begins to croak, all the others follow; and when he stops, they also become silent. When this captain gives the signal for stopping, you hear a note like *poop* coming from him. In the day-time they seldom make any great noise, unless the sky is covered; but in the night-time they may be heard at the distance of a mile and an half. When they croak, they are commonly near the surface of the water, under the bushes, and have their heads out of the water. By going slowly, therefore, one may get up almost quite close to them before they go away. As soon as they are quite under water, they think themselves safe, though it be ever so shallow. These creatures kill and eat young ducklings and goslings, and sometimes carry off chickens that come too near the water; when beaten, they cry out almost like little children. As soon as the air begins to grow a little cool in autumn, they hide themselves under the mud in the bottom of stagnant waters, and lie there torpid during the winter. As soon as the weather grows mild towards summer, they begin to get out of their holes and croak. They are supposed by the people of Virginia to be the purifiers of waters, and are respected as the geni of the fountains. Some of them were brought to England alive several years ago.

4. The bufo, or toad, is the most deformed and hideous of all animals. The body is broad; the back flat, and covered with a pimply dusky hide; the belly large, swagging, and swelling out; the legs short, and its pace laboured and crawling; its retreat gloomy and filthy: in short, its general appearance is such as to strike one with disgust and horror. Yet it is said by those who have resolution to view it with attention, that its eyes are fine; to this it seems that Shakespeare alludes, when he makes his Juliet remark,

Some say the lark and loathed toad change eyes;

As if they would have been better bestowed on so charming a songster than on this raucous reptile.

But the hideous appearance of the toad is such as to make this one advantageous feature overlooked, and to have rendered it in all ages an object of horror, and the origin of most tremendous inventions. Ælian makes its venom so potent, that basilisk-like it conveyed death by its very look and breath; but Juvenal is content with making the Roman ladies who were weary of their husbands form a potion from its entrails, in order to get rid of the good man. This opinion begat others of a more dreadful nature; for in after-times superstition gave it preternatural powers, and made it a principal ingredient in the incantations of nocturnal hags.

This animal was believed by some old writers to have a stone in its head fraught with great virtues medical and magical: it was distinguished by the name of the reptile, and called the *toad-stone*, *busonites*, *crapaudine*, *krottenstein*; but all its fancied powers vanished on the discovery of its being nothing but the fossil tooth of the sea-wolf †, or of some other flat-toothed

† See *Ancient
relics*.

fish, not unfrequent in our island as well as several other countries.

But these fables have been long exploded. And as to the notion of its being a poisonous animal, it is probable that its excessive deformity, joined to the faculty it has of emitting a juice from its pimples, and a dusky liquid from its hind parts, is the foundation of the report.

That it has any noxious qualities there seem to have been no proofs in the smallest degree satisfactory, tho' we have heard many strange relations on that point.— On the contrary, there have been many who have taken them in their naked hands, and held them long without receiving the least injury: it is also well known that quacks have eaten them, and have besides squeezed their juices into a glass and drank them with impunity. We may say also, that these reptiles are a common food to many animals; to buzzards, owls, Norfolk plovers, ducks, and snakes, who would not touch them were they in any degree noxious.

So far from having venomous qualities, they have of late been considered as if they had beneficent ones; particularly in the cure of the most terrible of diseases, the *cancer*, by suction: (See *British Zoology*, vol. iii. Append. p. 389, *et seq.*) But, from all circumstances, as Mr Pennant observes, they seem only to have rendered a horrible complaint more loathsome.

The most full information concerning the nature and qualities of this animal is contained in the following letters from Mr Arscott and Mr Pittfield to Dr Milles. "It would give me great pleasure (says Mr Arscott) to be able to inform you of any particulars worthy Mr Pennant's notice, concerning the toad who lived so many years with us, and was so great a favourite. The greatest curiosity in it was its becoming so remarkably tame. It had frequented some steps before the hall-door some years before my acquaintance commenced with it, and had been admired by my father for its size (which was of the largest I ever met with), who constantly paid it a visit every evening. I knew it myself above 30 years; and by constantly feeding it, brought it to be so tame, that it always came to the candle, and looked up as if expecting to be taken up and brought upon the table, where I always fed it with insects of all sorts; it was fondest of flesh maggots, which I kept in bran; it would follow them, and, when within a proper distance, would fix its eye, and remain motionless for near a quarter of a minute, as if preparing for the stroke, which was an instantaneous throwing its tongue at a great distance upon the insect, which stuck to the tip by a glutinous matter: the motion is quicker than the eye can follow (A).

"I always imagined that the root of its tongue was placed in the forepart of its under jaw, and the tip towards its throat, by which the motion must be a half circle; by which, when its tongue recovered its situation, the insect at the tip would be brought to the place of deglutition. I was confirmed in this by never observing any internal motion in its mouth, excepting one swallow the instant its tongue returned. Possibly I might be mistaken; for I never dissected one, but contented

(A) This rapid capture of its prey might give occasion to the report of its fascinating powers, Linnæus says, *Insecta in fauces fascino revocat.*

tented myself with opening its mouth, and slightly inspecting it.

"You may imagine, that a toad, generally detested, (although one of the most inoffensive of all animals), so much taken notice of and befriended, excited the curiosity of all comers to the house, who all desired to see it fed; so that even ladies so far conquered the horrors instilled into them by nurses, as to desire to see it. This produced innumerable and improbable reports, making it as large as the crown of a hat, &c. &c."

The following are answers from the same gentleman to some queries proposed by Mr Pennant.

"*First*, I cannot say how long my father had been acquainted with the toad before I knew it; but when I first was acquainted with it, he used to mention it as the old toad I've known so many years; I can answer for 36 years.

"*Secondly*, No toads that I ever saw appeared in the winter season. The old toad made its appearance as soon as the warm weather came, and I always concluded it retired to some dry bank to repose till the spring. When we new-lay'd the steps, I had two holes made in every third step, with a hollow of more than a yard long for it, in which I imagine it slept, as it came from thence at its first appearance.

"*Thirdly*, It was seldom provoked: neither that toad, nor the multitudes I have seen tormented with great cruelty, ever showed the least desire of revenge, by spitting or emitting any juice from their pimples.— Sometimes, upon taking it up, it would let out a great quantity of clear water, which, as I have often seen it do the same upon the steps when quite quiet, was certainly its urine, and no more than a natural evacuation.

"*Fourthly*, A toad has no particular enmity for the spider; he used to eat five or six with his millepedes (which I take to be its chief food) that I generally provided for it before I found out that flesh maggots, by their continual motion, was the most tempting bait;

but, when offered, it eat blowing flies and humble bees that come from the rat-tailed maggot in gutters, or in short any insect that moved. I imagine, if a bee was to be put before a toad, it would certainly eat it to its cost; but as bees are seldom stirring at the same time that toads are, they can seldom come in their way, as they seldom appear after sun-rising or before sun-set. In the heat of the day they will come to the mouth of their hole, I believe, for air. I once from my parlour window observed a large toad I had in the bank of a bowling-green, about 12 at noon, a very hot day, very busy and active upon the grass; so uncommon an appearance made me go out to see what it was, when I found an innumerable swarm of winged ants had dropped round his hole, which temptation was as irresistible as a turtle would be to a luxurious alderman.

"*Fifthly*, Whether our toad ever propagated its species, I know not; rather think not, as it always appeared well, and not lessened in bulk, which it must have done, I should think, if it had discharged so large a quantity of spawn as toads generally do. The females that are to propagate in the spring, I imagine, instead of retiring to dry holes, go into the bottom of ponds, and lie torpid among the weeds: for to my great surprise, in the middle of the winter, having for amusement put a long pole into my pond, and twisted it till it had gathered a large volume of weed, on taking it off I found many toads; and having cut some asunder with my knife, by accident, to get off the weed, found them full of spawn not thoroughly formed. I am not positive, but think there were a few males in March; I know there are 30 males (b) to one female, 12 or 14 of whom I have seen clinging round a female: I have often disengaged her, and put her to a solitary male, to see with what eagerness he would seize her. They impregnate the spawn as it is drawn (c) out in long strings, like a necklace, many yards long, not in a large quantity of jelly, like frogs spawn.

A 2

Sixthly,

(b) Mr John Hunter has assured me, that during his residence at Belleisle, he dissected some hundreds of toads, yet never met with a single female among them.

(c) I was incredulous as to the *obstetrical* offices of the male toad; but since the end is so well accounted for, and the fact established by such good authority, belief must take place.

Mr Demours, in the Memoirs of the French Academy, as translated by Dr Templeman, vol. i. p. 371, has been very particular in respect to the male toad as acting the part of an *accoucheur*: His account is curious, and claims a place here.

"In the evening of one of the long days in summer, Mr Demours, being in the king's garden, perceived two toads coupled together at the edge of an hole, which was formed in part by a great stone at the top.

"Curiosity drew him to see what was the occasion of the motions he observed, when two facts equally new surprised him. The *first* was the extreme difficulty the female had in laying her eggs, inasmuch that she did not seem capable of being delivered of them without some assistance. The *second* was, that the male was mounted on the back of the female, and exerted all his strength with his hinder feet in pulling out the eggs, whilst his fore-feet embraced her breast.

"In order to apprehend the manner of his working in the delivery of the female, the reader must observe, that the paws of these animals, as well those of the fore-feet as of the hinder, are divided into several toes, which can perform the office of fingers.

"It must be remarked likewise, that the eggs of this species of toads are included each in a membranous coat that is very firm, in which is contained the embryo; and that these eggs, which are oblong and about two lines in length, being fastened one to another by a short but very strong cord, form a kind of chaplet, the beads of which are distant from each other about the half of their length. It is by drawing this cord with his paw that the male performs the function of a midwife, and acquits himself in it with a dexterity that one would not expect from so lumpish an animal.

"The presence of the observer did not a little discompose the male: for some time he stopped short, and threw

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"Sixthly, Insects being their food, I never saw any toad show any liking or dislike to any plant (n).

"Seventhly, I hardly remember any persons taking it up except my father and myself; I do not know whether it had any particular attachment to us.

"Eighthly, In respect to its end, I answer this last query. Had it not been for a tame raven, I make no doubt but it would have been now living; who one day seeing it at the mouth of its hole, pulled it out, and although I rescued it, pulled out one eye, and hurt it so, that notwithstanding its living a twelvemonth it never enjoyed itself, and had a difficulty of taking its food, missing the mark for want of its eye: before that accident it had all the appearance of perfect health."

6. The rubeta, or natter-jack, frequents dry and sandy places: it is found on Putney common, and also near Revesby abbey, Lincolnshire. It never leaps, neither does it crawl with the slow pace of a toad, but its motion is liker to running. Several are found commonly together, and like others of the genus they appear in the evenings. The upper part of the body is of a dirty yellow, clouded with brown, and covered with porous pimples of unequal sizes: on the back is a yellow line. The upper side of the body is of a paler hue, marked with black spots, which are rather rough. On the fore-feet are four divided toes; on the hind five, a little webbed. The length of the body is two inches and a quarter; the breadth, one and a quarter; the length of the fore-legs, one inch one-sixth; of the hind legs, two inches. We are indebted to Sir Joseph Banks, for this account.

7. The pipal, or Surinam toad, is more ugly than even the common one. The body is flat and broad; the head small; the jaws, like those of a mole, are extended, and evidently formed for rooting in the ground; the skin of the neck forms a sort of wrinkled collar: the colour of the head is of a dark chestnut, and the eyes are small: the back, which is very broad, is of a lightish grey, and seems covered over with a number of small eyes, which are round, and placed at nearly equal distances. These eyes are very different from what they seem: they are the animal's eggs, covered with their shells, and placed there for hatching. These eggs are buried deep in the skin, and in the beginning of incubation but just appear; and are very visible when the young animal is about to burst from its confinement. They are of a reddish, shining yellow colour; and the spaces between them are full of small warts, resembling pearls.

This is their situation previous to their coming forth; but nothing so much demands our admiration as the

manner of their production. The eggs, when formed in the ovary, are sent, by some internal canals, which anatomists have not hitherto described, to lie and come to maturity under the bony substance of the back: in this state they are impregnated by the male, whose seed finds its way by pores very singularly contrived, and pierces not only the skin but the periostrum: the skin, however, is still apparently entire, and forms a very thick covering over the whole brood; but as they advance to maturity, at different intervals, one after another, the egg seems to start forward, and burgesons from the back, becomes more yellow, and at last breaks; when the young one puts forth its head: it still, however, keeps its situation until it has acquired a proper degree of strength, and then it leaves the shell, but still continues to keep upon the back of the parent. In this manner the pipal is seen travelling with her wondrous family on her back, in all the different stages of maturity. Some of the strange progeny, not yet come to sufficient perfection, appear quite torpid, and as yet without life in the egg: others seem just beginning to rise through the skin; here peeping forth from the shell, and there having entirely forsaken their prison: some are sporting at large upon the parent's back, and others descending to the ground to try their own fortune below. The male pipal is every way larger than the female, and has the skin less tightly drawn round the body. The whole body is covered with pustules, resembling pearls; and the belly, which is of a bright yellow, seems as if it were sewed up from the throat to the vent, a seam being seen to run in that direction. This animal, like the rest of the frog kind, is most probably harmless.

8. The water frog of Catesby has large black eyes, yellow irides, and long limbs: the upper part of the head and body is of a dusky green, spotted with black; and from each eye to the nose is a white line; and also a yellow line along the sides to the rump. They frequent rivulets and ditches, which they do not quit for the dry land. It is said they will spring five or six yards at a leap.

9. The rana arborea, or green tree frog of Catesby, is of a slender shape and bright green colour, marked on each side with a line of yellow: the eyes are black; the irides yellow; they have four toes before and five behind; at the end of each toe there is a round membrane, concave beneath, and not unlike the mouth of a leech. They lurk under the lower sides of leaves, even of the tallest trees, and adhere firmly, by means of the membranes at the ends of their toes, sticking to the smoothest surface: a looking-glass was held before one,

Rana.

at

threw on the curious impertinent a fixed look that marked his disquietness and fear; but he soon returned to his work with more precipitation than before, and a moment after he appeared undetermined whether he should continue it or not. The female likewise discovered her uneasiness at the sight of the stranger, by motions that interrupted sometimes the male in his operation. At length, whether the silence and steady posture of the spectator had dissipated their fear, or that the case was urgent, the male resumed his work with the same vigour, and successfully performed his function."

(D) This question arose from an assertion of Linnæus, that the toad delighted in filthy herbs. *Delectatur cotula, asclea, stachyde satide.* The unhappy deformity of the animal seems to be the only ground of this as well as another misrepresentation, of its conveying a poison with its pimples, its touch, and even its breath. *Verrucæ lætescentes venenatæ infusæ tactu, anhelitu.*

Ranai
||
Randolph.

at four yards distance; it reached it at one leap, and stuck closely to it. At night these frogs make an incessant chirping, and leap from spray to spray in search of insects. This species is common to America and the warmer parts of Europe.

10. The land frog of Catesby has much the appearance of a toad; above it is grey or brown, spotted with dusky; below white, faintly spotted; the irides are red; and the legs short. They frequent the high-lands, and are seen most frequently in wet weather and in the hottest time of the day: they leap, feed on insects, particularly the fire-fly and ant. Sometimes the Americans bake and reduce this species to powder, which, mixed with orris root, is taken as a cure for a tympany.

11. The cinereous frog has a gibbous, cinereous, and smooth back; the belly is yellow and granulated: on each side, from the nose to the rump, there is a white line; and there is the same on the outside of the thighs and legs; the toes are bullated at their ends. They inhabit Carolina.

RANAI, one of the Sandwich islands discovered by Captain Cooke, is about nine miles distant from MOWEE and MOROTOI, and is situated to the south-west of the passage between those two isles. The country towards the south is elevated and craggy; but the other parts of the island had a better appearance, and seemed to be well inhabited. It abounds in roots, such as sweet potatoes, *taro*, and yams; but produces very few plantains and bread-fruit trees. The south point of Ranai is in the latitude of $20^{\circ}46'$ north, and in the longitude of $203^{\circ}8'$ east.

RANCID, denotes a fatty substance that is become rank or musty, or that has contracted an ill smell by being kept close.

RANDIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking with those of which the order is doubtful. The calyx is monophyllous; the corolla salver-shaped; the berry unilocular, with a capsular rind. There are two species, viz. the *mitis* and *aculeata*.

RANDOLPH (Thomas); an eminent English poet in the 17th century, was born in Northamptonshire 1605. He was educated at Westminster and Cambridge, and very early distinguished for his excellent genius; for at about nine or ten years of age he wrote the History of the Incarnation of our Saviour in verse. His subsequent writings established his character, and gained him the esteem and friendship of some of the greatest men of that age, particularly of Ben Johnson, who adopted him one of his sons in the muses. He died in 1634, and was honourably interred. He wrote, 1. The Muses Look-

ing-glass, a comedy. 2. Amyntas, or the Impossible Dowry, a pastoral, acted before the king and queen. 3. Aristippus, or the Jovial Philosopher. 4. The Conceited Pedlar. 5. The Jealous Lovers, a comedy. 6. Hey for Honesty, down with Knavery, a comedy; and several poems.

RANDOM SHOT, in gunnery, is a shot made when the muzzle of a gun is raised above the horizontal line, and is not designed to shoot directly or point-blank.

The utmost random of any piece is about ten times as far as the bullet will go point-blank. The bullet will go farthest when the piece is mounted to about 45° above the level range. See GUNNERY and PROJECTILES.

RANGE, in gunnery, the path of a bullet, or the line it describes from the mouth of the piece to the point where it lodges. If the piece lie in a line parallel to the horizon, it is called the *right* or *level range*: if it be mounted to 45° , it is said to have the *utmost range*; all others between 00 and 45° are called the *intermediate ranges*.

RANGER, a sworn officer of a forest, appointed by the king's letters patent; whose business is to walk through his charge, to drive back the deer out of the purlieus, &c. and to present all trespasses within his jurisdiction at the next forest-court.

RANK, the order or place assigned a person suitable to his quality or merit.

RANK, is a straight line made by the soldiers of a battalion or squadron, drawn up side by side: this order was established for the marches, and for regulating the different bodies of troops and officers which compose an army.

RANK and Precedence, in the army and navy, are as follow:

Engineers RANK. Chief, as colonel; director, as lieutenant-colonel; sub-director, as major; engineer in ordinary, as captain; engineer extraordinary, as captain-lieutenant; sub-engineer, as lieutenant; practitioner-engineer, as ensign.

Navy RANK. Admiral, or commander in chief of his majesty's fleet, has the rank of a field-marshal; admirals, with their flags on the main-top-mast-head, rank with generals of horse and foot; vice-admirals, with lieutenant-generals; rear-admirals, as major-generals; commodores, with broad pendants, as brigadier-generals; captains of post-ships, after three years from the date of their first commission, as colonels; other captains, as commanding post-ships, as lieutenant-colonels; captains, not taking post, as majors; lieutenants, as captains.

Random
||
Rank.

RANK between the Army, Navy, and Governors.

ARMY.	NAVY.	GOVERNORS.
General in chief	Admiral in chief	Commander in chief of the forces in America
Generals of horse	Admiral with a flag at the main-top-mast	Captain-general of provinces
Lieutenant-generals	Vice-admirals	Lieutenant-generals of provinces
Major-generals	Rear-admirals	Lieutenant-governors and presidents
Colonels	Post-captains of 3 years	Lieutenant-governors not commanding
Lieutenant-colonels	Post-captains	Governors of charter colonies
Majors	Captains	Deputy-governors
Captains	Lieutenants	Established by the king, 1760

Doubling of the RANKS, is the placing two ranks in one, frequently used in the manœuvres of a regiment.

RANKS and Files, are the horizontal and vertical lines of soldiers when drawn up for service.

RANSOM, a sum of money paid for the redemption of a slave, or the liberty of a prisoner of war. In our law-books, ransom is also used for a sum paid for the pardon of some great offence, and to obtain the offender's liberty.

RANULA, a tumor under a child's tongue, which, like a ligature, hinders it from speaking or sucking.

RANUNCULUS, CROWFOOT: A genus of the polygamia order, belonging to the polyandria class of plants; and in the natural method ranking under the 26th order, *Muliflorique*. The calyx is pentaphyllous; there are five petals, each with a melliferous pore on the inside of the heel; the seeds naked.

Species. There are near 40 different species of this genus, six or eight of which claim general esteem as flowery plants for ornamenting the gardens, and a great number are common weeds in the fields, waters, and pasture ground, not having merit for garden culture. Of the garden kinds, the principal sort is the Asiatic or Turkey and Persian ranunculus, which comprises many hundred varieties of large, double, most beautiful flowers of various colours: but several other species having varieties with fine double flowers, make a good appearance in a collection, though as those of each species consist only of one colour, some white, others yellow, they are inferior to the Asiatic ranunculus, which is large, and diversified a thousand ways in rich colours, in different varieties. However, all the garden kinds in general effect a very agreeable diversity in assemblage in the flower compartments, &c. and they being all very hardy, succeed in any open beds and borders, &c.

Culture. The Asiatic species in all its varieties will succeed in any light, rich, garden earth; but the florists often prepare a particular compost for the fine varieties, consisting of good garden-mould or pasture-earth, sward and all, a fourth part of rotted cow-dung, and the like portion of sea-sand; and with this they

prepare beds four feet wide and two deep: however, in default of such compost, use beds of any good light earth of your garden; or, if necessary, it may be made light and rich with a portion of drift-sand and rotten dung, cow-dung is most commonly recommended; but they will also thrive in beds of well-wrought kitchen-garden earth, and they often prosper well in the common flower-borders.

The season for planting the roots is both in autumn and spring; the autumn plantings generally flower strongest and soonest by a month at least, and are succeeded by the spring-planting in May and June. Perform the autumnal planting in October and early part of November, but some plant towards the latter end of September in order to have a very early bloom; but those planted in that month and beginning of October often come up with rank leaves soon after, in winter, so as to require protection in hard frosts; those, however, planted about the middle or latter end of October, and beginning of November, rarely shoot up strong till towards spring, and will not require so much care of covering during winter; and the spring-planting may be performed the end of January or beginning of February, or as soon as the weather is settled; they will not require any trouble of covering, and will succeed the autumnal plants regularly in bloom, and will flower in good perfection. Thus by two or three different plantings you may obtain a succession of these beautiful flowers in constant bloom from April till the middle of June; but the autumnal plants, for the general part, not only flower strongest, but the roots increase more in size, and furnish the best off-sets for propagation: it is, however, proper to plant both in spring and autumn.

Prepare for the choicer sorts four-feet beds of light earth, and rake the surface smooth: then plant the roots in rows lengthwise the beds, either by drilling them in two inches deep, and six inches distance in the row, and the rows six or eight asunder; or you may plant them by bedding-in, or by dibble-planting, the same depth and distance.

Those designed for the borders should be planted generally

Ranuncu-
lus
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Rape.

nerally towards the spring, in little clumps or patches, three, four, or five roots in each, putting them in either with a dibble or trowel, two or three inches deep, and three or four asunder in each patch, and the patches from about three to five or ten feet distance, placing them rather forward in the border.

Propagation. All the varieties of the Asiatic ranunculus propagate abundantly by off-sets from the root, and new varieties are gained by seed.—1. By off-sets. The time for separating the off-sets is in summer when the flower is past, and the leaves and stalks are withered: then taking up all the roots in dry weather, separate the off-sets from each main root, and after drying the whole gradually in some shady airy room, put them up in bags till the autumn and spring seasons of planting; then plant them as before, placing all the off-sets in separate beds: many of them will blow the first year, but in the second they will all flower in good perfection.—2. By seed. Save a quantity of seed from the finest semi-double flowers, and sow it either in August, or in March, or April, though, to save trouble of winter-covering, some prefer the spring: it should be sowed in light rich mould, either in pots or in an east border, drawing very shallow flat drills five or six inches asunder, in which sow the seeds thinly, and cover them lightly with earth, giving frequent refreshments of water in dry weather, and in a month or six weeks the plants will rise with small leaves; observing to continue the light waterings in dry weather, to preserve the soil moist during their summer's growth to increase the size of the roots; and in June when the leaves decay, take up the roots and preserve them till the season for planting, then plant them in common beds, as before directed, and they will flower the spring following, when all the doubles of good properties should be marked, and the singles thrown away.

The juice of many species of ranunculus is so acrid as to raise blisters on the skin, and yet the roots may be eaten with safety when boiled.

RAPACIOUS ANIMALS, are such as live upon prey.

RAPE, in law, the carnal knowledge of a woman forcibly and against her will. This, by the Jewish law, was punished with death, in case the damsel was betrothed to another man: and, in case she was not betrothed; then a heavy fine of fifty shekels was to be paid to the damsel's father, and she was to be the wife of the ravisher all the days of his life; without that power of divorce, which was in general permitted by the Mosaic law.

The civil law punishes the crime of ravishment with death and confiscation of goods: under which it includes both the offence of forcible abduction, or taking away a woman from her friends; and also the present offence of forcibly dishonouring her; either of which, without the other, is in that law sufficient to constitute a capital crime. Also the stealing away a woman from her parents or guardians, and debauching her, is equally penal by the emperor's edict, whether she consent or is forced. And this, in order to take away from women every opportunity of offending in this way; whom the Roman laws suppose never to go astray without the seduction and arts of the other sex; and therefore, by restraining and making so highly penal the solicitations of the men, they meant to secure effectually the honour

of the women. But our English law does not entertain quite such sublime ideas of the honour of either sex, as to lay the blame of a mutual fault upon one of the transgressors only; and therefore makes it a necessary ingredient in the crime of rape, that it must be against the woman's will.

Rape was punished by the Saxon laws, particularly those of king Athelstan, with death; which was also agreeable to the old Gothic or Scandinavian constitution. But this was afterwards thought too hard: and in its stead another severe, but not capital, punishment was inflicted by William the Conqueror, viz. castration and loss of eyes; which continued till after Braeton wrote, in the reign of Henry III. But in order to prevent malicious accusations, it was then the law, (and, it seems, still continues to be so in appeals of rape), that the woman should, immediately after, go to the next town, and there make discovery to some credible persons of the injury she has suffered; and afterwards should acquaint the high constable of the hundred, the coroners, and the sheriff, with the outrage. This seems to correspond in some degree with the laws of Scotland and Arragon, which require that complaint must be made within 24 hours: though afterwards by statute Westm. 1. c. 13. the time of limitation in England was extended to 40 days. At present there is no time of limitation fixed: for, as it is usually now punished by indictment at the suit of the king, the maxim of law takes place, that "nullum tempus occurrit regi:" but the jury will rarely give credit to a stale complaint. During the former period also it was held for law, that the woman (by consent of the judge and her parents) might redeem the offender from the execution of his sentence, by accepting him for her husband; if he also was willing to agree to the exchange, but not otherwise.

In the 3 Edw. I. by the statute Westm. 1. c. 13. the punishment of rape was much mitigated: the offence itself, of ravishing a damsel within age, (that is, twelve years old) either with her consent or without, or of any other woman against her will, being reduced to a trespass, if not prosecuted by appeal within 40 days, and subjecting the offender only to two years imprisonment, and a fine at the king's will. But this lenity being productive of the most terrible consequences, it was, in ten years afterwards, 13 Edw. I. found necessary to make the offence of forcible rape felony by statute Westm. 2. c. 34. And by statute 18 Eliz. c. 7. it is made felony without benefit of clergy: as is also the abominable wickedness of carnally knowing or abusing any woman-child under the age of ten years; in which case the consent or non-consent is immaterial, as by reason of her tender years she is incapable of judgment and discretion. Sir Matthew Hale is indeed of opinion, that such profligate actions committed on an infant under the age of twelve years, the age of female discretion by the common law, either with or without consent, amount to rape and felony; as well since as before the statute of queen Elizabeth: but that law has in general been held only to extend to infants under ten; though it should seem that damsels between ten and twelve are still under the protection of the statute Westm. 1. the law with respect to their seduction not having been altered by either of the subsequent statutes.

A male infant, under the age of fourteen years, is

Rape.

Rape.

presumed by law incapable to commit a rape, and therefore it seems cannot be found guilty of it. For though in other felonies "*malitia supplet ætatem*;" yet, as to this particular species of felony, the law supposes an imbecillity of body as well as mind.

The civil law seems to suppose a prostitute or common harlot incapable of any injuries of this kind: not allowing any punishment for violating the chastity of her, who hath indeed no chastity at all, or at least hath no regard to it. But the law of England does not judge so hardly of offenders, as to cut off all opportunity of retreat even from common strumpets, and to treat them as never capable of amendment. It therefore holds it to be felony to force even a concubine or harlot; because the woman may have forsaken that unlawful course of life; for, as Bracton well observes, "*licet meretrix fuerit antea, certe tunc temporis non fuit, cum reclamando nequitie ejus consentire noluit.*"

As to the material facts requisite to be given in evidence and proved upon an indictment of rape, they are of such a nature, that, though necessary to be known and settled, for the conviction of the guilty and preservation of the innocent, and therefore are to be found in such criminal treatises as discourse of these matters in detail, yet they are highly improper to be publicly discussed, except only in a court of justice. We shall therefore merely add upon this head a few remarks from Sir Matthew Hale, with regard to the competency and credibility of witnesses; which may, *salvo pudore*, be considered.

And, first, the party ravished may give evidence upon oath, and is in law a competent witness; but the credibility of her testimony, and how far forth she is to be believed, must be left to the jury upon the circumstances of fact that concur in that testimony. For instance: if the witness be of good fame; if she presently discovered the offence, and made search for the offender; if the party accused fled for it; these and the like are concurring circumstances, which give greater probability to her evidence. But, on the other side, if she be of evil fame, and stand unsupported by others; if she concealed the injury for any considerable time after she had opportunity to complain; if the place, where the fact was alleged to be committed, was where it was possible she might have been heard, and she made no outcry: these and the like circumstances carry a strong, but not conclusive, presumption that her testimony is false or feigned.

Moreover, if the rape be charged to be committed on an infant under 12 years of age, she may still be a competent witness, if she hath sense and understanding to know the nature and obligations of an oath; and, even if she hath not, it is thought by Sir Matthew Hale, that she ought to be heard without oath, to give the court information; though that alone will not be sufficient to convict the offender. And he is of this opinion, first, Because the nature of the offence being secret, there may be no other possible proof of the actual fact; though afterwards there may be concurrent circumstances to corroborate it, proved by other witnesses; and, secondly, Because the law allows what the child told her mother, or other relations, to be given in evidence, since the nature of the

case admits frequently of no better proof; and there is much more reason for the court to hear the narration of the child herself, than to receive it at second-hand from those who swear they heard her say so. And indeed it seems now to be settled, that in these cases infants of any age are to be heard; and, if they have any idea of an oath, to be also sworn; it being found by experience, that infants of very tender years often give the clearest and truest testimony. But in any of these cases, whether the child be sworn or not, it is to be wished, in order to render her evidence credible, that there should be some concurrent testimony of time, place, and circumstances, in order to make out the fact; and that the conviction should not be grounded singly on the unsupported accusation of an infant under years of discretion. There may be therefore, in many cases of this nature, witnesses who are competent, that is, who may be admitted to be heard; and yet, after being heard, may prove not to be credible, or such as the jury is bound to believe. For one excellence of the trial by jury is, that the jury are triers of the credit of the witnesses, as well as of the truth of the fact.

"It is true (says this learned judge), that rape is a most detestable crime, and therefore ought severely and impartially to be punished with death; but it must be remembered, that it is an accusation easy to be made, hard to be proved, but harder to be defended by the party accused, though innocent." He then relates two very extraordinary cases of malicious prosecution for this crime, that had happened within his own observation; and concludes thus: "I mention these instances, that we may be the more cautious upon trials of offences of this nature, wherein the court and jury may with so much ease be imposed upon, without great care and vigilance; the heinousness of the offence many times transporting the judge and jury with so much indignation, that they are over-hastily carried to the conviction of the persons accused thereof, by the confident testimony of sometimes false and malicious witnesses."

RAPHAEL (D'Urbino), the greatest, most sublime, and most excellent painter that has appeared, since the revival of the fine arts, was the son of an indifferent painter named *Sanzio*, and was born at Urbino on Good Friday 1482. The popes Julius II. and Leo X. who employed him, loaded him with wealth and honour; and it is said that cardinal De St Bibiana had such a value for him, that he offered him his niece in marriage. His genius is admired in all his pictures; his contours are free, his ordonnances magnificent, his designs correct, his figures elegant, his expressions lively, his attitudes natural, his heads graceful; in fine, every thing is beautiful, grand, sublime, just, and adorned with graces. These various perfections he derived not only from his excellent abilities, but from his study of antiquity and anatomy; and from the friendship he contracted with Ariosto, who contributed not a little to the improvement of his taste. His pictures are principally to be found in Italy and Paris. That of the Transfiguration, preserved at Rome in the church of St Peter Monterio, passes for his master-piece. He had a handsome person, was well proportioned, and had great sweetness of temper; was polite, affable, and modest.

Rape,
Raphael.

Raphaim ^{||} **Raphidia.** def. He, however, lived in the utmost splendor; most of the eminent masters of his time were ambitious of working under him; and he never went out without a crowd of artists and others, who followed him purely through respect. He was not only the best painter in the world, but perhaps the best architect too; on which account Leo X. charged him with building St Peter's church at Rome: but he was too much addicted to pleasure, which occasioned his death at 37 years of age. He left a great number of disciples; among whom were Julio Romano and John Francis Penni, who were his heirs. Many able engravers, as Raimondi, George Mantuan, and Bloemart, engraved after Raphael. See PAINTING, p. 595 and 598.

RAPHAÏM, or **REPHAÏM**, (Moses), a name signifying *Giants*, as they really were, and an actual people too, situated in Basan or Batanea, beyond Jordan, separated from the Zanzummim by the river Jabbok. Also a valley near Jerusalem; Joshua x.

RAPHANUS, **RADISH**; a genus of the filiquosa order, belonging to the tetradynamia class of plants; and in the natural method ranking under the 39th order, *Siliquosa*. The calyx is close; the filiqua torose, or swelling out in knots, subarticulated, and round. There are two melliferous glandules between the shorter stamina and the pistil, and two between the longer stamina and the calyx.

There is only one species, viz. the sativus, or common garden radish; of which there are several varieties. They are annual plants, which being sowed in the spring, attain perfection in two or three months, and shoot up soon after into stalk for flower and seed, which, ripening in autumn, the whole plant, root and top, perishes; so that a fresh supply must be raised annually from seed in the spring, performing the sowings at several different times, from about Christmas until May, in order to continue a regular succession of young tender radishes throughout the season: allowing only a fortnight or three weeks interval between the sowings; for one crop will not continue good longer than that space of time, before they will either run to seed, or become tough, sticky, and too hot to eat.

RAPHANIDOSIS, a punishment inflicted at Athens upon adulterers. The manner of it was this: The hair was plucked off from the privities of the offender, hot ashes laid upon the place, and a radish or mullet thrust up his fundament, as has been mentioned under ADULTERY. To this Juvenal alludes, *Sat. x. ver. 317. Quosdam machos et mugilis intrat*. Persons who had been thus punished were called *ραφανιδισται*. The word *raphanidosis* is derived from *ραφανισ*, a radish.

RAPHIDIA, in zoology; a genus of insects, of the neuroptera order; the characters of which are these: The head is of a horny substance, and depressed or flattened: the mouth is armed with two teeth, and furnished with four palpi: the stemmata are three in number: the wings are deflected: the antennæ are filiform, as long as the thorax; the anterior part of which is lengthened out, and of a cylindrical form: the tail of the female is terminated by an appendix, resembling a flexible crooked bristle.—There are three species. The most remarkable is the ophiopsis; which for its shape is one of the most singular that can be seen †. It has an oblong head, shaped like a heart,

with its point joined to the thorax, and the broad part before. It is smooth, black, flattened, continually shaking, with short antennæ, yellowish maxillæ, and four palpi. Towards the middle of the upper part of the head, between the eyes, are the three stemmata, placed in a triangle. The thorax, to which this head is fastened, is narrow, long, and cylindrical. The abdomen, broader, is black like the rest of the body, with the segments margined yellow. The feet are of a yellowish cast. The wings, which are fatigiated, are white, diaphanous, veined, and as it were covered with a very fine net-work of black. This insect, in the figure of its head, resembles a snake. It is found but seldom, and in woods only. Its larva, chrysalis, and habitation, are absolutely unknown.

RAPIER, formerly signified a long old-fashioned sword, such as those worn by the common soldiers: but it now denotes a small sword, as contradictinguishd from a back-sword.

RAPIN (Rene), a Jesuit and eminent French writer, was born at Tours in 1621. He taught polite literature in the society of the Jesuits with great applause, and was justly esteemed one of the best Latin poets and greatest wits of his time. He died at Paris in 1687. He wrote, 1. A great number of Latin poems, which have rendered him famous throughout all Europe; among which are his *Hortorum libri quatuor*, which is reckoned his master-piece. 2. Reflections on Eloquence, Poetry, History, and Philosophy. 3. Comparisons between Virgil and Homer, Demosthenes and Cicero, Plato and Aristotle, Thucydides and Titus Livius. 4. The History of Jansenism. 5. Several works on religious subjects. The best edition of his Latin poems is that of Paris in 1723, in 3 vols 12mo.

RAPIN de Thoyras (Paul de), a celebrated historian, was the son of James de Rapin lord of Thoyras, and was born at Castres in 1661. He was educated at first under a tutor in his father's house; and afterwards sent to Puylaurens, and thence to Saumur. In 1697 he returned to his father, with a design to apply himself to the study of the law, and was admitted an advocate: but some time after, reflecting that his being a Protestant would prevent his advancement at the bar, he resolved to quit the profession of the law, and apply himself to that of the sword; but his father would not consent to it. The revocation of the edict of Nantes in 1685, and the death of his father, which happened two months after, made him resolve to come to England; but as he had no hopes of any settlement here, his stay was but short. He therefore soon after went to Holland, and listed himself in the company of French volunteers at Utrecht, commanded by M. Rapin his cousin-german. He attended the Prince of Orange into England in 1688: and the following year the Lord Kingstons made him an ensign in his regiment, with which he went into Ireland, where he gained the esteem of his officers at the siege of Carrickfergus, and had soon a lieutenant's commission. He was present at the battle of the Boyne, and was shot thro' the shoulder at the siege of Limerick. He was soon after captain of the company in which he had been ensign; but, in 1693, resigned his company to one of his brothers, in order to be tutor to the earl of Portland's son.

Rapier,
Rapin.

Rapine
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Ras-el-
Feel.

son. In 1699, he married Marianne Testard; but this marriage neither abated his care of his pupil, nor prevented his accompanying him in his travels. Having finished this employment, he returned to his family, which he had settled at the Hague; and here he continued some years. But as he found his family increase, he resolved to retire to some cheap country; and accordingly removed, in 1707, to Wesel, where he wrote his History of England, and some other pieces. Though he was of a strong constitution, yet seventeen years application (for so long was he in composing the history just mentioned) entirely ruined his health. He died in 1725. He wrote in French, 1. A Dissertation on the Whigs and Tories. 2. His History of England, printed at the Hague in 1726 and 1727, in 9 vols 4to, and reprinted at Trevoux in 1728, in 10 vols 4to. This last edition is more complete than that of the Hague. It has been translated into English, and improved with Notes, by the Reverend Mr Tindal, in 2 vols folio. This performance, though the work of a foreigner, is deservedly esteemed as the fullest and most impartial collection of English political transactions extant. The readers of wit and vivacity, however, may be apt to complain of him for being sometimes rather tedious and dull.

RAPINE, in law, the taking away another's goods &c. by violence.

RAPPERSWIL, a town of Switzerland, on the confines of the canton of Zurich, and of the territory of Gaster, with an old castle. It is strong by situation, being seated on a neck of land which advances into the lake of Zurich, and over which there is a bridge 850 paces long. It is subject to the cantons of Zurich and Berne. E. Long. 8. 57. N. Lat. 47. 20.

RAPPOLSTEIN, a town of France in Upper Alsace, which, before the Revolution, had the title of a barony. All the musicians of Alsace likewise depended upon this baron, and were obliged to pay him a certain tribute, without which they could not play upon their instruments. E. Long. 7. 28. N. Lat. 48. 15.

RAPTURE, an ecstasy or transport of mind. See EXTASY.

RARE, in physic, stands opposed to dense; and denotes a body that is very porous, whose parts are at a great distance from one another, and which is supposed to contain but little matter under a large bulk. See the following article.

RAREFACTION, in physics, the act whereby a body is rendered rare; that is, brought to possess more room, or appear under a larger bulk, without accession of any new matter.—This is very frequently the effect of fire, as has long been universally allowed. In many cases, however, philosophers have attributed it to the action of a repulsive principle. However, from the many discoveries concerning the nature and properties of the electric fluid and fire, there is the greatest reason to believe, that this repulsive principle is no other than elementary fire. See REPULSION.

RAS-EL-FEEL, one of the frontier provinces of Abyssinia, of which the late celebrated traveller Mr Bruce was made governor while in that country. It is but of small extent, and in its most prosperous state contained only 39 villages. The climate is extremely hot, in Mr Bruce's opinion one of the hottest in the world. He informs us, that on the first day of March, at three

o'clock in the afternoon, the thermometer stood at 114° in the shade, and in the evening at 82°; though at sunrise it had been no higher than 61. Notwithstanding this appearance of extreme heat, however, the sensation was by no means intolerable; they could hunt at mid-day, and felt the evenings rather cold. The soil is a fat, loose, black earth, which our author says is the same from 13° to 16° of north latitude; at least till we come to the deserts of Atbara, where the tropical rains cease. This country divides that of the Shangalla into two parts, nearly equal. These people inhabit a belt of land about 60 miles broad, all along the northern frontier of Abyssinia, excepting two large gaps or spaces which have been left open for the sake of commerce, and which are inhabited by strangers, to keep the Shangalla in awe. The latter trade in gold, which they pick up in the streams as it is washed down from the mountains; for there are no mines in their country, neither is there any gold in Abyssinia, excepting what is imported from this or some other country. The Shangalla are the natural enemies of the inhabitants of Ras-el-Feel, and much blood has been shed in the various incursions they have made upon one another; though of late those of Ras-el-Feel, by the assistance of the emperors, have been enabled to keep the Shangalla at bay.

RAS-SEM, a city of Tripoli in Barbary, concerning which a number of fables were told by the Tripoline ambassador, all of which were believed in England and other parts of Europe in the beginning of this century. (See PETRIIFIED-City). Mr Bruce informs us, that it is situated about five days journey south from Bengazi; but has no water excepting one fountain, which has a disagreeable taste, and seems to be impregnated with alum. Hence it has obtained the name of *Ras-Sem*, or the fountain of poison. The only remains of antiquity in this place consist of the ruins of a tower or fortification, which, in the opinion of Mr Bruce, is as late as the time of the Vandals; but he says he cannot imagine what use they made of the water, and they had no other within two days journey of the place.—Here our traveller saw many of the animals called *jerboa*, a kind of mice; which, he says, seem to partake as much of the nature of a bird as of a quadruped.

RASAY, one of the Hebrides Islands, is about 13 miles long and 2 broad. It contains 700 inhabitants, has plenty of lime-stone, free-stone; and feeds great numbers of black cattle; but has neither deers, hares, nor rabbits. The only appearance of a harbour in Rasay is at Clachan Bay, where Mr Macleod the proprietor of the island resides. Rasay presents a bold shore, which rises to the height of mountains; and here the natives have, with incredible labour, formed many little corn fields and potato grounds. These heights decrease at the south end, where there are some farms and a good-looking country. Mr Macleod is sole proprietor of this island, and of Rona and Fladda at the north end of it, which are only proper for grazing.

The house of Rasay is pleasantly situated near the south-west end of the island, which is the most level part of it. It has an extensive and excellent garden, and is surrounded with forest trees of considerable magnitude; another proof that trees will grow upon the edge of the sea, though it must be allowed that the channel

Ras-Sem,
Rasay.

Rascians channel here is narrow. Immediately behind the house of Rasay are the ruins of an ancient chapel, now used as the family burying-place.

Dr Johnson, in his Tour, expresses the highest satisfaction at the reception he met with when in Rasay from Mr Macleod.

RASCIANS, a poor oppressed people who dwelt on both sides of the Danube, and who, about the year 1594, being weary of the Turkish thralldom, first took 13 of their vessels upon that river; and then drawing together a body of fifteen thousand men between Buda and Belgrade, twice defeated the pashâ of Temeswar with a body of fourteen thousand Turks. They afterwards took Baczkerek, four miles from Belgrade, and the castle of Ottadt; then laying siege to that of Beche, on the Theyssa, the old pashâ of Temeswar marched to relieve it with eleven thousand men; but the Rascians encountering them, slew near ten thousand, and took 18 pieces of canon. The consequence of this victory was the reduction of Weretza and Lutz. Then, sending to the archduke for aid and gunners, they offered to put themselves and their country under the emperor's protection.

RASOR-BILL. See ALCA, n° 4.

RASOR-Fish. See SOLEN.

RASTALL (John), a printer and miscellaneous writer, was born in London, probably about the end of the 15th century, and educated at Oxford. Returning from the university, he settled in the metropolis, and commenced printer, "then esteemed (says Wood) a profession fit for any scholar or ingenious man." He married the sister of Sir Thomas More, with whom, we are told, he was very intimate; and whose writings he strenuously defended. From the title-page of one of his books, he appears to have lived in Cheapside, at the sign of the mermaid. He died in the year 1536; and left two sons, William and John: the first of whom became a judge in queen Mary's reign, and the latter a justice of peace. This John Rastall, the subject of the present article, was a zealous Papist; but Bale says, that he changed his religion before his death. He wrote, i. *Natura naturata*. Pits calls it a copious (*prolixa*) and ingenious comedy, describing Europe, Asia, and Africa; with cuts. What sort of a comedy this was, is not easy to conceive. Probably it is a cosmographical description, written in dialogue, and therefore styled a comedy. 2. The pastyme of the people; the cronycles of diverse realmys, and most especially of the realm of England, brevely compiled and emprinted in Cheapefyde, at the sign of the mearmaid, next Poltysgate, *cum privilegio*, fol. 3. *Ecclesia Johannis Rastall*, 1542. Was one of the prohibited books in the reign of Henry VIII. 4. *Legum Anglicanarum vocabula explicata*. French and Latin. Lond. 1567, 8vo. And some other works.

RASTADT, a town of Germany, in the circle of Suabia and marquisate of Baden, with a handsome castle. It is remarkable for a treaty concluded here between the French and Imperialists in 1714; and is seated on the river Merg, near the Rhine. E. Long. 9. 14. N. Lat. 48. 52.

RASTENBURG, a fine city in Prussia, on the Guber, surrounded with a wall, and since 1629 also with a rampart.

RAT, in zoology. See Mus.

The following receipt is said to have been found effectual for the destruction of rats. Take of the seeds of stavacre or lousewort, powdered, more or less as the occasion requires, one part; of oat-meal, three parts; mix them well, and make them up into a paste with honey. Lay pieces of it in the holes, and on the places where mice and rats frequent; and it will effectually kill or rid the place of those kind of vermin by their eating thereof.

Some time ago, the society for encouraging arts proposed a premium of 50l. for a preparation capable of alluring or fascinating rats so that they might be taken alive. In consequence of this, a great number of new traps, &c. were invented; and the following methods of alluring the rats to a certain place were published.

One of those most easily and efficaciously practised is the trailing some pieces of their most favourite food, which should be of the kind that has the strongest scent, such as toasted cheese or broiled red herrings, from the holes or entrances of the closet to their recesses in every part of the house or contiguous building. At the extremities and in different parts of the course of this trailed track, small quantities of meal, or any other kind of their food, should be laid, to bring the greater number into the tracks, and to encourage them to pursue it to the place where they are intended to be taken: at that place, when time admits of it, a more plentiful repast is laid for them, and the trailing repeated for two or three nights.

Besides this trailing and way-baiting, some of the most expert of the rat-catchers have a shorter and perhaps more effectual method of bringing them together; which is the calling them, by making such a whistling noise as resembles their own call; and by this means, with the assistance of the way-baits, they call them out of their holes, and lead them to the repast prepared for them at the place designed for taking them. But this is much more difficult to be practised than the art of trailing; for the learning the exact notes or cries of any kind of beasts or birds, so as to deceive them, is a peculiar talent which is seldom attained: though some persons have been known who could call together a great number of cats; and there was a man in London who could bring nightingales, when they were within hearing, about him, and even allure them to perch on his hand, so as to be taken.

In practising either of those methods, of trailing or calling, great caution must be used by the operator to suppress and prevent the scent of his feet and body from being perceived; which is done by overpowering that scent by others of a stronger nature. In order to this, the feet are to be covered with cloths rubbed over with asafœtida, or other strong-smelling substances; and even oil of rhodium is sometimes used for this purpose, but sparingly, on account of its dearness, though it has a very alluring as well as disguising effect. If this caution of avoiding the scent of the operator's feet, near the track, and in the place where the rats are proposed to be collected, be not properly observed, it will very much obstruct the success of the attempt to take them; for they are very shy of coming where the scent of human feet lies very fresh, as it intimates to their sagacious instinct the presence of human creatures, whom they

Rat.

naturally dread. To the above-mentioned means of alluring by trailing, way-baiting, and calling, is added another of a very material efficacy, which is, the use of oil of rhodium, which, like the marum Syriacum in the case of cats, has a very extraordinary fascinating power on these animals. This oil is extremely dear, and therefore sparingly used. It is exalted in a small quantity in the place, and at the entrance of it, where the rats are intended to be taken; particularly at the time when they are to be last brought together, in order to their destruction; and it is used also by smearing it on the surface of some of the implements used in taking by the method below described; and the effect it has in taking off their caution and dread, by the delight they appear to have in it, is very extraordinary.

It is usual, likewise, for the operator to disguise his figure as well as scent, which is done by putting on a sort of gown or cloak, of one colour, that hides the natural form, and makes him appear like a post or some such inanimate thing; which habit must likewise be scented as above, to overpower the smell of his person; and besides this, he is to avoid all motion till he has secured his point of having all the rats in his power.

When the rats are thus enticed and collected, where time is afforded, and the whole in any house and out-buildings are intended to be cleared away, they are suffered to regale on what they most like, which is ready prepared for them, and then to go away quietly for two or three nights; by which means those that are not allured the first night are brought afterwards, either by their fellows, or the effects of the trailing, &c. and will not fail to come duly again, if they are not disturbed or molested. But many of the rat-catchers make shorter work, and content themselves with what can be brought together in one night or two; but this is never effectual, unless where the building is small and entire, and the rats but few in number.

The means of taking them, when they are brought together, are various. Some entice them into a very large bag, the mouth of which is sufficiently capacious to cover nearly the whole floor of the place where they are collected; which is done by smearing some vessel, placed in the middle of the bag, with oil of rhodium, and laying in the bag baits of food. This bag, which before lay flat on the ground with the mouth spread open, is to be suddenly closed when the rats are all in. Others drive or fright them, by slight noises or motions, into a bag of a long form, the mouth of which, after all the rats are come in, is drawn up to the opening of the place by which they entered, all other ways of retreat being secured. Others, again, intoxicate or poison them, by mixing with the repast prepared for them the coculus Indicus, or the nux vomica. They direct four ounces of the coculus Indicus, with twelve ounces of oatmeal, and two ounces of treacle or honey, made into a moist paste with strong-beer: but if the nux vomica be used, a much less proportion will serve than is here given of the coculus. Any similar composition of these drugs, with that kind of food the rats are most fond of, and which has a strong flavour, to hide that of the drugs, will equally well answer the end. If indeed the coculus Indicus be well powdered, and infused in strong-beer for some time, at least half the quantity here directed will serve as well as the quantity before-mentioned. When the rats appear to be thoroughly in-

toxicated with the coculus, or sick with the nux vomica, they may be taken with the hand, and put into a bag or cage, the door of the place being first drawn to, lest those who have strength and sense remaining escape.

Rat-Island, a small detached part of the island of Lundy, off the north coast of Devon. Though noted in Donn's map of the county, it is not worth mention here, but as giving opportunity to subjoin a farther notice of Lundy, which island was purchased a few years since by Mr Cleveland M. P. for about 1200 guineas, who has a small villa on it: not more than 400 acres are cultivated: it is let altogether for 70l. a-year. The soil is good, though no trees will grow on the island. It has fine springs of water: the houses are seven: the inhabitants, men, women, and children, do not exceed 24. The bird called *murr*, whose eggs are very large and fine, the Lundy parrot, and rabbits, are the chief produce; these abound, and are taken for the feathers, eggs, and skins, principally. They have now (1794) 70 bullocks and 400 sheep, but the latter do not thrive. They pay no taxes: fishing skiffs often call with necessities: the situation is very pleasant, and the rocks around, which are large, and partly granite, are wild, romantic, and novel. It had probably more inhabitants once, as human bones have been ploughed up. It has no place of worship, nor public-house; but strangers are always welcome. Eight cannon lie on the battlements on the top of a very steep precipice, under which is a curious cavern. Lord Gower, Mr Benson, and Sir J. B. Warren, K. B. have been former proprietors. See LUNDY.

Rat-Tails, or *Arrests*. See FARRIERY, § xxxvii.

RATAFIA, a fine spirituous liquor, prepared from the kernels, &c. of several kinds of fruits, particularly of cherries and apricots.

Ratafia of cherries is prepared by bruising the cherries, and putting them into a vessel wherein brandy has been long kept; then adding to them the kernels of cherries, with strawberries, sugar, cinnamon, white pepper, nutmeg, cloves; and to 20 pound of cherries 10 quarts of brandy. The vessel is left open ten or twelve days, and then stopped close for two months before it be tapped. Ratafia of apricots is prepared two ways, viz. either by boiling the apricots in white-wine, adding to the liquor an equal quantity of brandy, with sugar, cinnamon, mace, and the kernels of apricots; infusing the whole for eight or ten days; then straining the liquor, and putting it up for use: or else by infusing the apricots, cut in pieces, in brandy, for a day or two, passing it through a straining bag, and then putting in the usual ingredients.

RATCH, or *RASH*, in clock-work, a sort of wheel having twelve fangs, which serve to lift up the detents every hour, and make the clock strike. See CLOCK.

RATCHETS, in a watch, are the small teeth at the bottom of the fusee, or barrel, which stops it in winding up.

RATE, a standard or proportion, by which either the quantity or value of a thing is adjusted.

RATES, in the navy, the orders or classes into which the ships of war are divided, according to their force and magnitude.

The regulation, which limits the rates of men of war to the smallest number possible, seems to have been dictated by considerations of political economy, or of that of

Rat-Island
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Rates.

of the simplicity of the service in the royal dock-yards. The British fleet is accordingly distributed into six rates, exclusive of the inferior vessels that usually attend on naval armaments; as sloops of war, armed ships, bomb-ketches, fire-ships and cutters, or schooners commanded by lieutenants.

Ships of the first rate mount 100 cannon, having 42-pounders on the lower deck, 24-pounders on the middle deck, 12-pounders on the upper deck, and 6-pounders on the quarter-deck and fore-castle. They are manned with 850 men, including their officers, seamen, marines, and servants.

In general, the ships of every rate, besides the captain, have the master, the boatswain, the gunner, the chaplain, the purser, the surgeon, and the carpenter; all of whom, except the chaplain, have their mates or assistants, in which are comprehended the sail-maker, the maffer at arms, the armourer, the captain's clerk, the gunsmith, &c.

The number of other officers are always in proportion to the rate of the ship. Thus a first rate has six lieutenants, six master's mates, twenty-four midshipmen, and five surgeon's mates, who are considered as gentlemen: besides the following petty officers; quarter-masters and their mates, fourteen; boatswain's mates and yeomen, eight; gunner's mates and assistants, six; quarter-gunners, twenty-five; carpenter's mates, two, besides fourteen assistants; with one steward, and steward's mate to the purser.

If the dimensions of all ships of the same rate were equal, it would be the simplest and most perspicuous method to collect them into one point of view in a table: but as there is no invariable rule for the general dimensions. We must content ourselves with but a few remarks on ships of each rate, so as to give a general idea of the difference between them.

The *Victory*, one of the last built of our first rates, is 222 feet 6 inches in length, from the head to the stern; the length of her keel, 151 feet 3 inches; that of her gun-deck, or lower deck, 186 feet; her extreme breadth is 51 feet 10 inches; her depth in the hold, 21 feet 6 inches; her burden, 2162 tons; and her poop reaches 6 feet before the mizen-mast.

Ships of the second rate carry 90 guns upon three decks, of which those on the lower battery are 32-pounders; those on the middle, 18-pounders; on the upper deck, 12-pounders; and those on the quarter-deck, 6-pounders, which usually amount to four or six. Their complement of men is 750, in which there are six lieutenants, four master's mates, 24 midshipmen, and four surgeon's mates, 14 quarter-masters and their mates, eight boatswain's mates and yeomen, six gunner's mates and yeomen, with 22 quarter-gunners, two carpenter's mates, with 10 assistants, and one steward and steward's mate.

Ships of the third rate carry from 64 to 80 cannon, which are 31, 18, and 9 pounders. The 80-gun ships however begin to grow out of repute, and to give way to those of 74, 70, &c. which have only two whole batteries; whereas the former have three, with 28 guns planted on each, the cannon of their upper deck being the same as those on the quarter-deck and fore-castle of the latter, which are 9-pounders. The complement in a 74 is 650, and in a 64, 500 men; having, in peace, four lieutenants, but in war, five; and when an admiral

is aboard, six. They have three master's mates, 16 midshipmen, three surgeon's mates, 10 quarter-masters and their mates, six boatswain's mates and yeomen, four gunner's mates and yeomen, with 18 quarter-gunners, one carpenter's mate, with eight assistants, and one steward and steward's mate under the purser.

Ships of the fourth rate mount from 60 to 50 guns, upon two decks, and the quarter-deck. The lower tier is composed of 24-pounders, the upper tier of 12-pounders, and the cannon on the quarter-deck and fore-castle are 6-pounders. The complement of a 50 gun ship is 350 men, in which there are three lieutenants, two master's mates, 10 midshipmen, two surgeon's mates, eight quarter-masters and their mates, four boatswain's mates and yeomen, one gunner's mate and one yeoman, with 12 quarter-gunners, one carpenter's mate and six assistants, and a steward and steward's mate.

All vessels of war, under the fourth rate, are usually comprehended under the general name of *frigates*, and never appear in the line of battle. They are divided into the 5th and 6th rates; the former mounting from 40 to 32 guns, and the latter from 28 to 20. The largest of the fifth rate have two decks of cannon, the lower battery being of 18-pounders, and that of the upper deck of 9-pounders; but those of 36 and 32 guns have one complete deck of guns, mounting 12-pounders, besides the quarter-deck and fore-castle, which carry 6-pounders. The complement of a ship of 44 guns is 280 men; and that of a frigate of 36 guns, 240 men. The first has three, and the second two, lieutenants; and both have two master's mates, six midshipmen, two surgeon's mates, six quarter-masters and their mates, two boatswain's mates and one yeoman, one gunner's mate and one yeoman, with 10 or 11 quarter-gunners, and one purser's steward.

Frigates of the 6th rate carry 9-pounders, those of 28 guns having 3-pounders on their quarter-deck, with 200 men for their complement; and those of 24, 160 men: the former has two lieutenants, the latter, one; and both have two master's mates, four midshipmen, one surgeon's mate, four quarter-masters and their mates, one boatswain's mate and one yeoman, one gunner's mate and one yeoman, with six or seven quarter-gunners, and one purser's steward.

The sloops of war carry from 18 to 8 cannon, the largest of which have six-pounders; and the smallest, viz. those of 8 or 10 guns, four-pounders. Their officers are generally the same as in the 6th rates, with little variation; and their complements of men are from 120 to 60, in proportion to their force or magnitude. *N. B.* Bomb-vessels are on the same establishment as sloops; but fire-ships and hospital-ships are on that of fifth rates.

Nothing more evidently manifests the great improvement of the marine art, and the degree of perfection to which it has arrived in Britain, than the facility of managing our first rates; which were formerly esteemed incapable of government, unless in the most favourable weather of the summer.

Ships of the second rate, and those of the third, which have three decks, carry their sails remarkably well, and labour very little at sea. They are excellent in a general action, or in cannonading a fortress. Those of the third rate, which have two tiers, are fit for the

Rates.

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Ratio.

line of battle, to lead the convoys and squadrons of ships of war in action, and in general to suit the different exigencies of the naval service.

The fourth-rates may be employed on the same occasions as the third-rates, and may be also destined amongst the foreign colonies, or on expeditions of great distance; since these vessels are usually excellent for keeping and sustaining the sea.

Vessels of the fifth rate are too weak to suffer the shock of a line of battle; but they may be destined to lead the convoys of merchant ships, to protect the commerce in the colonies, to cruise in different stations, to accompany squadrons, or be sent express with necessary intelligence and orders. The same may be observed of the sixth rates.

The frigates, which mount from 28 to 38 guns upon one deck, with the quarter-deck, are extremely proper for cruising against privateers, or for short expeditions, being light, long, and usually excellent sailors.

RATEEN, or RATTEN, in commerce, a thick woollen stuff, quilled, woven on a loom with four treddles, like serges and other stuffs that have the whale or quilling. There are some rateens dressed and prepared like cloths; others left simply in the hair, and others where the hair or knap is frized. Rateens are chiefly manufactured in France, Holland, and Italy, and are mostly used in linings. The frize is a sort of coarse rateen, and the drugget is a rateen half linen half woolen.

RATIFICATION, an act approving of and confirming something done by another in our name.

RATIO, in arithmetic and geometry, is that relation of homogeneous things which determines the quantity of one from the quantity of another, without the intervention of a third.

Two numbers, lines, or quantities, A and B, being proposed, their relation one to another may be considered under one of these two heads: 1. How much A exceeds B, or B exceeds A? And this is found by taking A from B, or B from A, and is called *arithmetic reason*, or *ratio*. 2. Or how many times, and parts of a time, A contains B, or B contains A? And this is called *geometric reason* or *ratio*; (or, as Euclid defines it, it is the *mutual habitude*, or *respect*, of two magnitudes of the same kind, according to quantity; that is, as to how often the one contains, or is contained in, the other); and is found by dividing A by B, or B by A. And here note, that that quantity which is referred to another quantity is called the *antecedent of the ratio*; and that to which the other is referred is called the *consequent of the ratio*; as, in the ratio of A to B, A is the antecedent, and B the consequent. Therefore any quantity, as antecedent, divided by any quantity as a consequent, gives the ratio of that antecedent to the consequent.

Thus the ratio of A to B is $\frac{A}{B}$, but the ratio of B to A is $\frac{B}{A}$; and, in numbers, the ratio of 12 to 4 is

$\frac{12}{4} = 3$, or triple; but the ratio of 4 to 12 is $\frac{4}{12} = \frac{1}{3}$, or subtriple.

And here note, that the quantities thus compared

must be of the same kind; that is, such as by multiplication may be made to exceed one the other, or as these quantities are said to have a ratio between them, which, being multiplied, may be made to exceed one another. Thus a line, how short soever, may be multiplied, that is, produced so long as to exceed any given right line; and consequently these may be compared together, and the ratio expressed: but as a line can never, by any multiplication whatever, be made to have breadth, that is, to be made equal to a superficies, how small soever; these can therefore never be compared together, and consequently have no ratio or respect one to another, according to quantity; that is, as to how often the one contains, or is contained in, the other. See QUANTITY.

RATIOCINATION, the act of reasoning. See REASONING.

RATION, or RATIAN, in the army, a portion of ammunition, bread, drink, and forage, distributed to each soldier in the army, for his daily subsistence, &c. The horse have rations of hay and oats when they cannot go out to forage. The rations of bread are regulated by weight. The ordinary ration of a foot soldier is a pound and a half of bread per day. The officers have several rations according to their quality and the number of attendants they are obliged to keep.—When the ration is augmented on occasions of rejoicing, it is called a *double ration*. The ship's crews have also their rations or allowances of biscuit, pulse, and water, proportioned according to their stock.

RATIONALE, a solution or account of the principles of some opinion, action, hypothesis, phenomenon, or the like.

RATIBOR, a town of Germany, in Silesia, and capital of a duchy of the same name, with a castle. It has been twice taken by the Swedes, and is seated on the river Oder, in a country fertile in corn and fruits, 15 miles north-east of Troppaw, and 142 east of Prague. E. Long. 22. 24. N. Lat. 50. 14.

RATISBON, an ancient, large, rich, handsome, and strong city of Germany, in Bavaria, free and imperial, with a bishop's see, whose bishop is a prince of the empire. It is called by the Germans Regensburg, from the river Regens, which runs under a fine stone bridge, and throws itself into the Danube below the city; and the rivers Luber and Nab mix with it above the city. The French call it Ratibon, in imitation of the Latins; it hath formerly been subject to the kings of Bavaria, who made it the place of their residence; but it was declared free by the emperor Frederick I. which does not however hinder the dukes of Bavaria from dividing the toll with the citizens, according to an agreement between them. These princes have also the criminal jurisdiction, for which the magistrates of the city pay them homage. It is the first city of the bench of Suabia, and contains at present within its walls five different free states of the empire; namely, the bishop, the abbot of St Emmeran, the abbesses of the Low and High Munster, and the city. The inhabitants of Ratibon have the privilege not to be cited before other tribunals, unless for actions above 400 florins. The senate is composed of 17 members, and there is a council of 10, which is charged with the government of the state. The citizens have a right to elect a chief, who judges of the affairs of police. The catholics have the exercise of their religion in the cathedral church, and others, and the

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the Lutherans in three churches, which they have built. The magistrates and officers of the city are all Protestants; and it is to be remarked, that although there are about 22 Catholic churches, yet there are very few Catholic citizens; the magistracy not allowing the freedom of the town to be given to Catholics living there. As this city is large, elegant, and full of magnificent houses, it has been chosen many years for the place of holding the diet, upon account of the conveniency, to many neighbouring princes and states, of sending their provisions by land and water, without great expence. The town-house, in the hall of which the Diet meets, is extremely magnificent. In the year 1740, however, when there was a war in Germany, the Diet met at Frankfort on the Main, till after the death of the emperor Charles VII. Provisions are very plentiful at Ratibon in time of peace. The inhabitants have a good deal of trade, the river on which it stands being navigable, and communicating with a great part of Germany. It is 55 miles south-east of Nuremberg, 62 north of Munich, and 195 west of Vienna. E. Long. 12. 5. N. Lat. 48. 59.

RATLINES, or, as the sailors call them *ratlins*, those lines which make the ladder steps to go up the shrouds and puttocks, hence called the *ratlins of the shrouds*.

RATOLZFEL, a strong town of Germany, in Suabia, near the west end of the lake Constance. It is seated on that part of it called *Bodensee*, and belongs to the house of Austria, who took it from the duke of Wirtemberg, after the battle of Nordlingen. It is 12 miles west of the city of Constance. It is defended by the impregnable castle of Hohen Dweil, on an inaccessible hill in the middle of a plain, the rock of which is flint, so that a few men may hold it out against an army.

RATTLESNAKE. See CROTALUS.

RATTLESNAKE ROOT. See POLYGALA.

RATZEBURG, or RATZEMBURG, an ancient town of Germany, in the circle of Lower Saxony, and in the duchy of Lawenburgh, with a bishop's see and a castle. The town depends on the duchy of Lawenburgh, and the cathedral church on that of Ratzburg. It is seated on an eminence, and almost surrounded with a lake 25 miles in length and three in breadth. The Duke of Lawenburgh seized and fortified it in 1689, and the king of Denmark took it in 1693; but it was dismantled, and restored in 1700 to the Duke, who re-fortified it. This town has been frequently pillaged, particularly in 1552, by Francis duke of Saxe Lawenburgh, because the canons refused to elect his son Magnus their bishop. It lies nine miles south of Lubeck. This place is noted for its excellent beer. E. Long. 10. 58. N. Lat. 53. 47.

RAVA, a town of Great Poland, and capital of a palatinate of the same name, with a fortified castle, where they keep state prisoners. The houses are built of wood, and there is a Jesuits college. It is seated in a morass covered with water, which proceeds from the river Rava, with which it is surrounded. It is 45 miles south of Blosko, and 50 south-west of Warsaw. The palatinate is bounded on the north by that of Blosko, on the east by that of Mazovia, on the south by that of Sandomer, and on the west by that of Lencieza.

RAVELIN, in fortification, was anciently a flat

bastion placed in the middle of a curtain; but now a detached work composed only of two faces, which make a salient angle without any flanks, and raised before the counterescarp of the place. See FORTIFICATION.

RAVEN, in ornithology. See CORVUS.

Sea RAVEN, or *corvo marino* of Kongo in Africa, in ichthyology, is about six feet long, and big in proportion; but the most singular circumstance appertaining to this creature is the stone found in its head, to which the natives ascribe some medicinal virtues, and the delicate taste of its hard roe, which is still much admired, when dried in the sun, and becomes as hard as a stone.

RAVENGLAS, a town of Cumberland in England, situated between the rivers Irt and Esk, which, with the sea, encompass three parts of it. It is a well built place, and has a good road for shipping, which brings it some trade. E. Long. 0. 5. N. Lat. 54. 20.

RAVENNA (anc. *geog.*), a noble city of Gallia Cispadana; a colony of Theffalians, on the Adriatic, in washes or a boggy situation, which proved a natural security to it. The houses were all of wood, the communication by bridges and boats, and the town kept sweet and clean by the tides carrying away the mud and soil, (Strabo). Anciently it had a port at the mouth of the Bedefis; Augustus added a new port, capacious to hold a fleet, for the security of the Adriatic, between which and the city lay the *Via Cæsaris*. In the lower age it was the seat of the Ostrogoths for 72 years; but being recovered by Narfes, Justinian's general, it became the residence of the exarchs, magistrates sent by the emperor from Constantinople, for 175 years, when it was taken by the Longobards. It is still called *Ravenna*, capital of Romania. The seat of the western or Roman Empire was by Honorius translated to Ravenna about the year 404, and hence the country in which it stood was called *Romania*, in the pope's territory. It had a very flourishing trade till the sea withdrew two miles from it, which has been a great detriment. The fortifications are of little importance, and the citadel is gone to ruin. It is now most remarkable for the excellent wine produced in its neighbourhood. The mausoleum of Theodoric is still to be seen, remarkable for being covered by a single stone 28 feet in diameter and 15 thick. It was at Ravenna that the duke of Nemours fell, after having gained a most decisive victory over the confederate army, in 1511. See FRANCE, n^o 129, and Modern Universal History, vol. xx. p. 324. &c.

RAVENSBURG, a county of Germany, in Westphalia, bounded on the north by the bishoprics of Osnaburg and Minden, on the east by Lemgow, on the south by the bishopric of Paderborn, and on the west by that of Munster. It belongs to the king of Prussia, and has its name from the castle of Ravensburg.

RAVENSBURG, a free and imperial town of Germany, in Algow, in the circle of Suabia. It is well built, and the public structures are handsome. The inhabitants are partly Protestants and partly Papists. It is seated on the river Cænsis, in E. Long. 9. 46. N. Lat. 47. 44.

RAVET, an insect shaped like a may-bug, or cock chaffel, (see SCARABÆUS), with which the island of Guadaloupe is much pestered. It has a stinking smell, preys upon paper, books, and furniture, and whatever they

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Ravet.

Ravilliac. they do not gnaw is discoloured by their ordure. These nasty insects, which are very numerous, and appear chiefly by night, would be intolerable, were it not for a large spider, some of them as long as a man's fist, which intangles them in its web, and otherwise surprises them. On which account the inhabitants of the island are very careful of these spiders.

Modern Univ. Hist.
vol. xxi.
p. 147.
note (A),
&c.

RAVILLIAC (Francis), the infamous assassin of Henry IV. of France, was a native of Angoulême, and at the time of his execution was about one or two and thirty years of age. See FRANCE, n° 146, and HENRY IV. of France. Ravilliac was the son of parents who lived upon alms. His father was that sort of inferior retainer to the law, to which the vulgar give the name of a *pettifogger*, and his son had been bred up in the same way. Ravilliac had set up a claim to an estate, but the cause went against him: this disappointment affected his mind deeply: he afterwards taught a school, and, as himself said, received charitable gifts, though but of a very small value, from the parents of those whom he taught; and yet his distress was so great, that he had much ado to live. When he was seized for the king's murder, he was very loosely guarded; all were permitted to speak with him who pleased; and it was thought very remarkable that a Jesuit should say to him, "Friend, take care, whatever you do, that you don't charge honest people." He was removed next day from the house of Espérnon to the Conciergerie, the proper prison of the parliament of Paris. When he was first interrogated, he answered with great boldness, "That he had done it, and would do it, if it were to do again." When he was told that the king, though dangerously wounded, was living, and might recover, he said that he had struck him home, and that he was sure he was dead. In his subsequent examinations he owned that he had long had an intention to kill the king, because he suffered two religions in his kingdom; and that he endeavoured to obtain an audience of him, that he might admonish him. He also said that he understood the king's great armament to be against the pope, and that, in his opinion, to make war against the pope, was to make war against God. We have no distinct account of the three last examinations; but he is said to have persisted, in the most solemn asseverations, that he had no accomplices, and that nobody had persuaded him to the fact. He appeared surprised at nothing so much as at the universal abhorrence of the people, which, it seems, he did not expect. They were forced to guard him strictly from his fellow-prisoners, who would otherwise have murdered him. The butchers of Paris desired to have him put into their hands, affirming that they would slay him alive, and that he should still live 12 days. When he was put to the torture, he broke out into horrid execrations, and always insisted that he did the fact from his own motive, and that he could accuse nobody. On the day of his execution, after he had made the *amende honorable* before the church of Notre Dame, he was carried to the Greve; and, being brought upon a scaffold, was tied to a wooden engine in the shape of a St Andrew's cross. The knife with which he did the murder being fastened in his right hand, it was first burnt in a slow fire; then the fleshy parts of his body were torn with red-hot pincers, and melted lead, oil, pitch, and rosin, poured into the wounds,

and through a clay funnel into his bowels by the navel. *Ravilliac.* The people refused to pray for him; and when, according to the sentence pronounced upon him, he came to be dragged to pieces by four horses, one of those that were brought appearing to be but weak, one of the spectators offered his own, with which the criminal was much moved: he is said to have then made a confession, which was so written by the greffier Voisin, that not so much as one word of it could ever be read. He was very earnest for absolution, which his confessor refused, unless he would reveal his accomplices; "Give it me conditionally (said he); upon condition that I have told the truth," which they did. His body was so robust, that it resisted the force of the horses; and the executioner was at length obliged to cut him into quarters, which the people dragged through the streets. The house in which he was born was demolished, and a column of infamy erected; his father and mother were banished from Angoulême, and ordered to quit the kingdom upon pain of being hanged, if they returned, without any form of process; his brothers, sisters, uncles, and other relations, were commanded to lay aside the name of Ravilliac, and to assume some other. Such was the fate of this execrable monster, who, according to his own account, suffered himself to be impelled to such a fact by the seditious sermons and books of the Jesuits, whom Henry, rather out of fear than love, had recalled and caressed, and to whom he had bequeathed his heart.

Neither the dying words of Ravilliac, nor so much of his process as was published, were credited by his contemporaries. Regalt the historian says, that there were two different opinions concerning this assassination; one, that it was conducted by some grandees, who sacrificed that monarch to their old resentments; the other, that it was done by the emissaries of the Spaniards. Letters from Brussels, Antwerp, Mechlin, and other places, were received before the 15th of May, with a report of the king's death. Though nothing occurs in the examinations of Ravilliac that were first published, in reference to his journeys to Naples and other places; yet as these are set down as certain truths by good authors, so there are probable grounds to believe that they were not fictitious. It appears from Sir Ralph Winwood's Memorials, that Ravilliac had been not long before at Brussels. Amongst other circumstances that created a very great doubt, whether the assassin spoke truth, were the things found in his pocket at the time he was seized; amongst which was a chaplet, the figure of a heart made in cotton, in the centre of which he said there was a bit of the true cross, but when cut there was none, which he affirmed was given him by a canon at Angoulême, a piece of paper with the arms of France painted upon it, another full of characters, and a third containing verses for the meditation of a criminal going to execution. The provost of Pluviers, or Petiviers, in Beauce, about six miles from Paris, had said openly on the day that Henry IV. was murdered, "This day the king is either slain or dangerously wounded." After the king's death was known, he was seized and sent prisoner to Paris; but, before he was examined, he was found hanged in the strings of his drawers. His body was, notwithstanding, hung up by the heels on the common gibbet on the 19th of June. What increased the suspicions

Raun
||
Ray.

grounded on this man's end, was his having two sons Jesuits, and his being a dependent on the family of Monsieur d'Entraques.

RAUN, upon the river Miza, a town of some strength, remarkable for a bloody skirmish between the Prussians and Austrians, in August 1744. The king of Prussia, intending to get possession of Beraun, sent thither six battalions, with eight cannon, and 800 hussars; but General Festitz being there with a great party of his corps, and M. Luchesi with 1000 horse, they not only repulsed the Prussians, but attacked them in their turn, and, after a warm dispute, obliged them to retire with considerable loss.

RAURICUM (anc. geog.), a town of the Raurici, situated over against Abnoba, a mountain from which the Danube takes its rise. A Roman colony led by L. Manutius Plancus the scholar and friend of Cicero: called *Colonia Rauriaca* (Pliny), *Raurica* (Inscription), *Augusta Rauricorum*. The town was destroyed in Julian's time. It is now commonly called *Augst*, a village greatly decayed from what it formerly was. It is situated on the Rhine, distant about two hours to the east of Basil. The country is now the canton of Basil.

RAY (John), a celebrated botanist, was the son of Mr Roger Ray a blacksmith, and was born at Black Notly in Essex in 1628. He received the first rudiments of learning at the grammar-school at Braintree; and in 1644 was admitted into Catharine hall in Cambridge, from whence he afterwards removed to Trinity college in that university. He took the degree of master of arts, and became at length a senior fellow of the college; but his intense application to his studies having injured his health, he was obliged at his leisure hours to exercise himself by riding or walking in the fields, which led him to the study of plants. He noted from Johnson, Parkinson, and the *Phytologia Britannica*, the places where curious plants grew; and in 1658 rode from Cambridge to the city of Chester, from whence he went into North Wales, visiting many places, and among others the famous hill of Snowdon; returning by Shrewsbury and Gloucester. In 1660 he published his *Catalogus Plantarum circa Cantabrigiam nascentium*, and the same year was ordained deacon and priest. In 1661 he accompanied Francis Willoughby, Esq; and others in search of plants and other natural curiosities, in the north of England and Scotland; and the next year made a western tour from Chester, and through Wales, to Cornwall, Devonshire, Dorsetshire, Hampshire, Wiltshire, and other counties. He afterwards travelled with Mr Willoughby and other gentlemen through Holland, Germany, Italy, France, &c. took several tours in England, and was admitted fellow of the Royal Society. In 1672, his intimate and beloved friend Mr Willoughby died in the 37th year of his age, at Middleton Hall, his seat in Yorkshire; "to the infinite and unspeakable loss and grief (says Mr Ray) of myself, his friends, and all good men." There having been the closest and sincerest friendship between Mr Willoughby and Mr Ray, who were men of similar natures and tastes, from the time of their being fellow collegians, Mr Willoughby not only confided in Mr Ray, in his lifetime, but also at his death: for he made him one of the executors of his will, and charged him with the education of his sons Francis and

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Thomas, leaving him also for life 60l. per annum. The eldest of these young gentlemen not being four years of age, Mr Ray, as a faithful trustee, betook himself to the instruction of them; and for their use composed his *Nomenclator Classicus*, which was published this very year, 1672. Francis the eldest dying before he was of age, the younger became Lord Middleton. Not many months after the death of Mr Willoughby, Mr Ray lost another of his best friends, bishop Wilkins; whom he visited in London the 18th of November 1672, and found near expiring by a total suppression of urine for eight days. As it is natural for the mind, when it is hurt in one part, to seek relief from another; so Mr Ray, having lost some of his best friends, and being in a manner left destitute, conceived thoughts of marriage; and accordingly, in June 1673, did actually marry a gentlewoman of about 20 years of age, the daughter of Mr Oakley of Launton in Oxfordshire. Towards the end of this year, came forth his "Observations Topographical, Moral, &c." made in foreign countries; to which was added his *Catalogus Stirpium in exteris regionibus observatarum*: and about the same time, his *Collection of unusual or local English words*, which he had gathered up in his travels through the counties of England. After having published many books on subjects foreign to his profession, he at length resolved to publish in the character of a divine, as well as in that of a natural philosopher: in which view he published his excellent demonstration of the being and attributes of God, entitled *The Wisdom of God manifested in the Works of the Creation*, 8vo, 1697. The rudiments of this work were read in some college lectures; and another collection of the same kind he enlarged and published under the title of *Three Psycological Discourses, concerning the Chaos, Deluge, and Dissolution of the World*, 8vo, 1692. He died in 1705. He was modest, affable, and communicative; and was distinguished by his probity, charity, sobriety, and piety. He wrote a great number of works; the principal of which, besides those already mentioned, are, 1. *Catalogus Plantarum Angliae*. 2. *Dictionarium Trilingue secundum locos communes*. 3. *Historia Plantarum, Species, haecenus editas, aliasque insuper multas noviter inventas et descriptas complectens*, 3 vols. 4. *Methodus Plantarum nova, cum Tabulis*, 8vo, and several other works on plants. 5. *Synopsis Methodica Animalium quadrupedum et Serpentinum generis*, 8vo. 6. *Synopsis Methodica Avium et Piscium*. 7. *Historia Insectorum, opus posthumum*. 8. *Methodus Insectorum*. 9. *Philosophical Letters, &c.*

RAY, in optics, a beam of light emitted from a radiant or luminous body. See LIGHT and OPTICS.

Inflected Rays, those rays of light which, on their near approach to the edges of bodies, in passing by them, are bent out of their course, being turned either from the body or towards it. This property of the rays of light is generally termed *diffraction* by foreigners, and Dr Hooke sometimes called it *deflection*.

Reflected Rays, those rays of light which, after falling upon the body, do not go beyond the surface of it, but are thrown back again.

Refracted Rays, those rays of light which, after falling upon any medium, enter its surface, being bent either towards or from a perpendicular to the point on which they fell.

C

Pencil

Ray
||
Reading.

Pencil of Rays, a number of rays issuing from a point of an object, and diverging in the form of a cone.

RAZOR, a well-known instrument, used by surgeons, barbers, &c. for shaving off the hair from various parts of the body.—As shaving to many people is a most painful operation, cutlers in different countries have long applied their skill to remove that inconvenience. Some have invented soaps of a peculiar kind to make the operation more easy, and some have invented straps. With respect to razors, some artists have succeeded rather by accident than from any fixed principle; and therefore we have found great inequality in the goodness of razors made by the same artist.

A correspondent assures us, that he has for 40 years past been at much pains to find out razors made by the best makers both in England and Scotland, and was fortunate enough, about 22 years ago, to discover a kind made by a Scotchman of the name of *Logan*, which he called magnetical razors, because they were directed to be touched with an artificial magnet before using. These, our friend assures us, are most excellent razors, and he has used them for upwards of 20 years. He says likewise that they continue in good order, without requiring to be ground; but that the great draw-back on their being generally used, is the price, which is higher than most people are able or disposed to give for that instrument. Our correspondent, who resides in the vicinity of London, also informs us, that lately the famous surgeon's instrument-maker, Mr Savigny in Pall Mall, after numberless experiments, in the course of above 20 years, has at length brought razors to a degree of perfection never yet equalled; and with such certainty, that the purchaser is in no danger of a disappointment, though the price is very moderate. By these, we are told, the operation of shaving is performed with greater ease, more perfectly, and more expeditiously, than with any other.

RE, in grammar, an inseparable particle added to the beginning of words to double or otherwise modify their meaning; as in re-action, re-move, re-export, &c.

RE-ACTION, in physiology, the resistance made by all bodies to the action or impulse of others that endeavour to change its state whether of motion or rest, &c.

READING, the art of delivering written language with propriety, force, and elegance.

"We must not judge so unfavourably of eloquence or good reading (says the illustrious Fenelon), as to reckon it only a frivolous art, that a declaimer uses to impose upon the weak imagination of the multitude, and to serve his own ends. It is a very serious art, designed to instruct people; to suppress their passions and reform their manners; to support the laws, direct public councils, and to make men good and happy."

Delivery in reading should be less animated than in interested speaking.

Reason and experience demonstrate, that *delivery in reading ought to be less animated than in interested speaking*. In every exercise of the faculty of speech, and those expressions of countenance and gesture with which it is generally attended, we may be considered to be always in one of the two following situations: First, delivering our *bosom sentiments* on circumstances which relate to ourselves or others, or, secondly, *repeating* something that was spoken on a certain occasion for the amuse-

ment or information of an auditor. Now, if we observe the deliveries natural to these two situations, we shall find, that the first may be accompanied with every degree of expression which can manifest itself in us, from the lowest of sympathy to the most violent and energetic of the superior passions; while the latter, from the speaker's chief business being to repeat what he heard *with accuracy*, discovers only a faint imitation of those signs of the emotions which we suppose agitated him from whom the words were first borrowed.—The use and necessity of this difference of manner is evident; and if we are attentive to these natural signs of expression, we shall find them conforming with the greatest nicety to the slightest and most minute movements of the breast.

This repetition of another's words might be supposed to pass through the mouth of a second or third person; and in these cases, since they were not ear and eye witnesses of him who first spoke them, their manner of delivery would want the advantage necessarily arising from an immediate idea of the original one; hence, on this account, this would be a still less lively representation than that of the first *repeater*. But as, from a daily observation of every variety of speech and its associated signs of emotion, mankind soon become pretty well acquainted with them, and this in different degrees, according to their discernment, sensibility, &c. experience shows us that these latter *repeaters* (as we call them) might conceive and use a manner of delivery which, though less *characteristic* perhaps, would on the whole be no way inferior to the first, as to the common natural expression proper for their situation. It appears, therefore, that repeaters of every degree may be esteemed upon a level as to animation, and that our twofold distinction above contains accurately enough the whole variety of ordinary delivery;—we say *ordinary*, because

There is another very peculiar kind of delivery sometimes used in the person of a *repeater*, of which it will in this place be necessary to take some notice. What we mean here is *mimicry*; an accomplishment which, when perfectly and properly displayed, never fails of yielding a high degree of pleasure. But since this pleasure chiefly results from the principle of *imitation* respecting *manner*, and not from the purport of the *matter* communicated; since, comparatively speaking, it is only attainable by few persons, and practised only on particular occasions;—on these accounts it must be refused a place among the modes of useful delivery taught us by *general nature*, and esteemed a qualification purely anomalous.

These distinctions with regard to a speaker's situation of mind premised, let us see to which of them an *author* and his *reader* may most properly be referred, and how they are circumstanced with regard to one another.

The matter of all books is, either what the author says in his *own* person, or an acknowledged recital of the words of *others*: hence an author may be esteemed both an *original* speaker and a *repeater*, according as what he writes is of the first or second kind. Now a reader must be supposed either actually to personate the author, or one whose office is barely to communicate what he has said to an auditor. But in the first of these suppositions he would, in the delivery of what is the author's own, evidently commence *mimic*; which being, as above

above observed, a character not acknowledged by general nature in this department, ought to be rejected as generally improper. The other supposition therefore must be accounted right; and then, as to the *whole* matter of the book, the reader is found to be exactly in the situation of a *repeater*, save that he takes what he delivers from the page before him instead of his memory. It follows then, in proof of our initial proposition, that, if we are directed by nature and propriety, the manner of our delivery in reading ought to be inferior in warmth and energy to what we should use, were the language before us the spontaneous effusions of our own hearts in the circumstances of those out of whose mouths it is supposed to proceed.

Evident as the purport of this reasoning is, it has not so much as been glanced at by the writers on the subject we are now entered upon, or any of its kindred ones; which has occasioned a manifest want of accuracy in several of their rules and observations. Among the rest, this precept has been long reverberated from author to author as a perfect standard for propriety in reading. "Deliver yourselves in the same manner you would do, were the matter your own original sentiments uttered directly from the heart." As all kinds of delivery must have many things in common, the rule will in many articles be undoubtedly right; but, from what has been said above, it must be as certainly faulty in respect to several others; as it is certain nature never confounds by like signs two things so very different, as a *copy* and an *original*, an emanation darted immediately from the sun, and its weaker appearance in the lunar reflection.

The precepts we have to offer for improving the above-mentioned rule, shall be delivered under the heads of *accent*, *emphasis*, *modulation*, *expression*, *pauses*, &c.

I. Accent. In attending to the affections of the voice when we speak, it is easy to observe, that, independent of any other consideration, one part of it differs from another, in *stress*, *energy*, or *force* of utterance. In words we find one syllable differing from another with respect to this mode; and in sentences one or more words as frequently vary from the rest in a similar manner. This stress with regard to *syllables* is called *accent*, and contributes greatly to the variety and harmony of language. Respecting *words*, it is termed *emphasis*; and its chief office is to assist the sense, force, or perspicuity of the sentence—of which more under the next head.

"Accent (as described in the Lectures on Elocution) is made by us two ways; either by dwelling longer upon one syllable than the rest, or by giving it a smarter percussive of the voice in utterance. Of the first of these we have instances in the words *glory*, *father*, *holy*; of the last in *bat'tle*, *hav'it*, *bor'row*. So that accent with us is not referred to tune, but to time; to quantity, not quality; to the more equable or precipitate motion of the voice, not to the variation of the notes or inflexions."

In *theatric declamation*, in order to give it more pomp and solemnity, it is usual to dwell longer than common upon the unaccented syllables; and the author now quoted has endeavoured to prove (p. 51. 54.) the practice faulty, and to show (p. 55.) that "though it (i. e. true solemnity) may demand a slower utterance

than usual, yet (it) requires that the same proportion in point of quantity be observed in the syllables, as there is in musical notes when the same tune is played in quicker or slower time." But that this deviation from ordinary speech is not a fault, as our author asserts; nay, that on the contrary it is a real beauty when kept under proper regulation, the following observations it is hoped will sufficiently prove.

(I.) It is a truth of the most obvious nature, that those things which on their application to their proper senses have a power of raising in us certain ideas and emotions, are ever *differently* modified in their constituent parts when different effects are produced in the mind: and also (II.) that, within proper bounds, were we to suppose these constituent parts to be proportionally increased or diminished as to *quantity*, this effect would still be the same as to *quality*.—For instance: The different ideas of strength, swiftness, &c. which are raised in us by the same species of animals, is owing to the different form of their corresponding parts; the different effects of music on the passions, to the different airs and movements of the melody; and the different expressions of human speech, to a difference in tone, speed, &c. of the voice. And these peculiar effects would still remain the same, were we to suppose the animals above alluded to, to be *greater* or *lesser*, within their proper bounds; the movement of the music *quicker* or *slower*, provided it did not palpably interfere with that of some other species; and the pitch of the voice *higher* or *lower*, if not carried out of the limits in which it is observed on similar occasions naturally to move. Farther (III.) since, respecting the emotions more especially, there are no rules to determine *a priori* what effect any particular attribute or modification of an object will have upon a percipient, our knowledge of this kind must evidently be gained from experience. Lastly, (IV.) In every art imitating nature we are pleased to see the characteristic members of the pattern *heightened* a little farther than perhaps it ever was carried in any real example, provided it be not bordering upon some ludicrous and disagreeable provinces of excess.

Now for the application of these premises.—To keep pace and be consistent with the *dignity* of the tragic muse, the delivery of her language should necessarily be dignified; and this it is plain from observation (I.) cannot be accomplished otherwise than by something different in the manner of it from that of ordinary speech; since *dignity* is essentially different from *familiarity*. But how must we discover this different manner? By attending to nature: and in this case she tells us, that besides using a *slower* delivery, and greater *distinctness* of the words (which every thing merely *grave* requires, and gravity is a *concomitant* of dignity, though not its *essence*), we must dwell a little *longer* upon the *unaccented* syllables than we do in common. As to what our author observes in the above quotation, of *dignity's* only requiring a *slower* utterance than ordinary, while the proportion of the syllables as to quantity continues the same; it is apprehended the remark (II.) respecting *quickness* and *slowness* of movement, will show it to be not altogether true. For since the delivery is not altered in *form*, its expression must be still of the same kind, and perhaps what may be rightly suggested by the term *gravely familiar*.

Reading. But something farther may be yet said in defence of this *artificial* delivery, as our author calls it. Is not the movement of any thing, of whatever species, when dignified or solemn, in general of an *equable* and *deliberate* nature (as in the minuet, the military step, &c.)? And in theatrical declamation, is not the propensity to introduce this *equableness* so strong, that it is almost *impossible* to avoid it wholly, were we ever so determined to do it? If these two queries be answered in the affirmative (as we are persuaded they will), while the first supports our argument for the *propriety* of the manner of delivery in question, the second discovers a kind of *necessity* for it. And that this manner may be carried a little farther in quantity on the *stage* than is usual in *real life*, the principle (IV.) of heightening nature will justify, provided fashion (which has ever something to do in these articles) give it a sanction; for the *precise* quantity of several heightenings may be varied by this great legislator almost at will.

3 Emphasis. II. *Emphasis*. As *emphasis* is not a thing annexed to particular words, as *accent* is to syllables, but owes its rise chiefly to the *meaning* of a passage, and must therefore vary its seat according as that meaning varies, it will be necessary to explain a little farther the general idea given of it above.

Of man's first disobedience, and the fruit
Of that forbidden tree, whose mortal taste
Brought death into the world, and all our woe, &c.
Sing heav'nly muse, &c.

Supposing, in reference to the above well-known lines, that originally other beings, besides men, had disobeyed the commands of the Almighty, and that the circumstance were well known to us, there would fall an *emphasis* upon the word *man's* in the first line, and hence it would be read thus;

Of *man's* first disobedience, and the fruit, &c.

But if it were a notorious truth, that mankind had transgressed in a peculiar manner more than once, the *emphasis* would fall on *first*, and the line be read,

Of man's *first* disobedience, &c.

Again, admitting death (as was really the case) to

have been an unheard-of and dreadful punishment brought upon man in consequence of his transgression; on that supposition the third line would be read,

Brought *death* into the world, &c.

But if we were to suppose mankind knew there was such an evil as death in other regions, though the place they inhabited had been free from it till their transgression; the line would run thus,

Brought death into the *world*, &c.

Now from a proper delivery of the above lines, with regard to any one of the suppositions we have chosen, out of several others that might in the same manner have been imagined, it will appear that the *emphasis* they illustrate is effected by a manifest *delay* in the pronunciation, and a tone something *fuller* and *louder* than is used in ordinary; and that its office is solely to determine the meaning of a sentence with reference to something said before, presupposed by the author as general knowledge, or in order to remove an ambiguity where a passage is capable of having more senses given it than one.

But, supposing in the above example, that none of the senses there pointed out were precisely the true one, and that the meaning of the lines were no other than what is obviously suggested by their simple construction; in that case it may be asked, if in reading them there should be no word dignified with the emphatical accompaniments above described?—The answer is, Not one with an *emphasis* of the *same* kind as that we have just been illustrating; yet it is nevertheless true, that on hearing these lines well read, we shall find some words distinguished from the rest by a manner of delivery bordering a little upon it (A). And these words will in general be such as seem the most important in the sentence, or on other accounts to merit this distinction. But as at best it only *enforces*, *graces*, or *enlivens*, and not *fixes* the meaning of any passage, and even caprice and fashion (B) have often a hand in determining its place and magnitude, it cannot properly be reckoned an *essential* of delivery. However, it is of too much moment to be neglected by those who would wish to be good readers; and, for the sake of distinction, we may not

(A) The following lines will illustrate both these kinds of stresses: For, to convey their right meaning, the word *ANY* is evidently to be pronounced louder and fuller than those with the accents over them.

Get *wéalth* and *pláce*, if possible with *gráce*;

If not, by *ANY* means get *wéalth* and *pláce*. POPE.

This couplet is accented in the manner we find it in the *Essay on Elocution* by *Mason*. And if, according to the judgment of this author, the words thus distinguished are to have an emphatical stress, it must be of the inferior kind above-mentioned, and which a little farther on we call *emphasis of force*; while the word *ANY* in a different type alone possesses the other sort of energy, and which is there contradistinguished by the term *emphasis of sense*.

(B) Among a number of people who have had proper opportunities of learning to read in the best manner it is now taught, it would be difficult to find two, who, in a given instance, would use the *emphasis of force* alike, either as to place or quantity. Nay some scarce use any at all: and others will not scruple to carry it much beyond any thing we have a precedent for in common discourse; and even now and then throw it upon words so very trifling in themselves, that it is evident they do it with no other view, than for the sake of the *variety* it gives to the modulation.—This practice, like the introduction of discords into music, may without doubt be indulged now and then; but were it too frequent, the capital intent of these energies would manifestly either be destroyed or rendered dubious.

Reading. not unaptly denominate both the kinds of energies in question, by the terms *emphasis of sense*, and *emphasis of force* (c).

Now from the above account of these two species of emphasis it will appear, "that in reading, as in speaking, the first of them must be determined entirely by the *sense* of the passage, and always made *alike*;" But as to the other, *taste* alone seems to have a right of fixing its situation and quantity."—Farther: Since the more essential of these two energies is solely the work of nature (as appears by its being constantly found in the common conversation of people of all kinds of capacities and degrees of knowledge), and the most ignorant person never fails of using it *rightly* in the effusions of his own heart, it happens very luckily, and ought always to be remembered, that provided we understand what we read, and give way to the dictates of our own feeling, the *emphasis of sense* can scarce ever avoid falling spontaneously upon its proper place.

Here it will be necessary to say something by way of reply to a question which will naturally occur to the mind of every one. As the rule for the *emphasis of sense* requires we should understand what we read before it can be properly used, it is incumbent upon us never to attempt to read what we have not previously studied for that purpose? In answer to this, it must be observed, that though such a step will not be without its advantages; yet, as from the fairness of printed types, the well-known pauses of punctuation, and a long acquaintance with the phraseology and construction of our language, &c. experience tells us it is *possible* to comprehend the sense at the first reading, a previous perusal of what is to be read does not seem *necessary* to all, though, if they would wish to appear to advantage, it may be *expedient* to many; and it is this circumstance

which makes us venture upon extemporary reading, and give it a place among our amusements.—Similar remarks might be made with regard to *modulation*, *expression*, &c. did not what is here observed naturally anticipate them.

III. *Modulation* (D). Every person must have observed, that, in speaking, the voice is subject to an alteration of sound, which in some measure resembles the movement of a tune. These sounds, however, are evidently nothing like so much varied as those that are strictly musical; and we have attempted to show in the preceding chapter, that, besides this, they have an essential difference in themselves. Nevertheless, from the general similitude of these two articles, they possess several terms in common; and the particular we have now to examine is in both of them called *modulation*. This affection of the voice, being totally *arbitrary*, is differently characterized in different parts of the world; and, through the power of custom, every place is inclined to think their own the only one natural and agreeable, and the rest affected with some barbarous twang or ungainly variation (E). It may be observed, however, that though there is a general uniform cast or fashion of modulation peculiar to every country, yet it by no means follows, that there is or can be any thing fixed in its application to particular passages; and therefore we find different people will, in any given instance, use modulations something different, and nevertheless be each of them equally agreeable.

But, quitting these general remarks, we shall (as our purpose requires it) consider the properties of modulation a little more minutely.

First, then, we may observe, that, in speaking, there is a particular sound (or *key-note*, as it is often called), in which the modulation for the most part runs, and to which

(c) The first of these terms answers to the *simple emphasis* described in the *Lectures on Elocution*, and the second nearly to what is there called *complex*. The difference lies in this. Under *complex emphasis* the author seems (for he is far from being clear in this article) to include the *tones* simply considered of all the emotions of the mind; as well the *tender* and *languid*, as the *forcible* and *exulting*. Our term is intended to be confined to such modes of expression alone as are marked with an apparent *stress* or *increase* of the voice.

(D) The author of the *Introduction to the Art of Reading*, not allowing that there is any variation of tone, as to *high* and *low*, in the delivery of a complete period or sentence, places modulation solely in the diversification of the key-note and the variety of syllables, as to *long* or *short*, *swift* or *slow*, *strong* or *weak*, and *loud* or *soft*. As we are of a different opinion, our idea of modulation is confined purely to *harmonious inflexions of voice*. These qualities of words, it is true, add greatly both to the force and beauty of delivery; yet, since some of them are fixed and not arbitrary (as *long* and *short*), and the others (of *swift* and *slow*, *strong* and *weak*, *loud* and *soft*), may be considered as modes of expression which do not affect the modulation as to *tone*, it will agree best with our plan to esteem these properties as respectively belonging to the established laws of *pronunciation* and the *imitative* branch of expression mentioned in the end of the ensuing head.

(E) From what accounts we have remaining of the modulation of the ancients, it appears to have been highly ornamented, and apparently something not unlike our modern *recitative*; particularly that of their theatric declamation was music in its strictest sense, and accompanied with instruments. In the course of time and the progress of refinement, this modulation became gradually more and more simple, till it has now lost the genius of music, and is entirely regulated by taste. At home here, every one has heard the *sing-song* cant, as it is called, of

Ti ti dum dum, ti ti dum ti dum de,
Ti dum ti dum, ti dum ti dum dum de;

which, though disgusting now to all but mere rustics on account of its being out of fashion, was very probably the favourite modulation in which heroic verses were recited by our ancestors. So fluctuating are the taste and practices of mankind! But whether the power of language over the passions has received any advantage from the change just mentioned, will appear at least very doubtful, when we recollect the stories of its former triumphs, and the inherent charms of musical sounds.

Reading. which its occasional inflexions, either above or below, may in some respects be conceived to have a reference, like that which common music has to its key-note. Yet there is this difference between the two kinds of modulation, that whereas the first always concludes in the key-note, the other frequently concludes a little below it (F). This key-note, in speaking, is generally the sound given at the outset of every complete sentence or period; and it may be observed on some occasions to vary its pitch through the limits of a musical interval of a considerable magnitude. The tones, that fall a little lower than the key at the close of a sentence or period, are called *cadences*. These cadences, if we are accurate in our distinctions, will, with respect to their offices, be found of two kinds; though they meet so frequently together, that it may be best to conceive them only as answering a double purpose. One of these offices is to assist the sense, and the other to decorate the modulation. An account of the first may be seen in the section on *Pauses*; and the latter will be found to show itself pretty frequently in every thing grave and plaintive, or in poetic description and other highly ornamented language, where the mind is by its influence brought to feel a placid kind of dignity and satisfaction. These two cadences, therefore, may be conveniently distinguished by applying to them respectively the epithets *significant* and *ornamental*.

We have already observed, that reading should in some things differ from speaking; and the particular under consideration seems to be one which ought to vary a little in these arts. For,

Modulation in reading serves a twofold purpose. At the same time that it gives pleasure to the ear on the principles of harmony, it contributes through that medium to preserve the attention. And since written language (when not purely dramatical) is in general more elegant in its construction, and musical in its periods, than the oral one; and since many interesting particulars are wanting in reading, which are present in speaking, that contributes greatly to fix the regard of the hearer; it seems reasonable, in order to do justice to the language, and in part to supply the incitements of attention just alluded to, that in the former of these two articles a modulation should be used something more harmonious and artificial than in the latter. Agreeably to this reasoning, it is believed, we shall find every reader, on a narrow examination, adopt more or less a modulation thus ornamented: though, after all, it must be acknowledged there are better grounds to believe, that the practice has been hitherto directed intuitively by nature, than that it was discovered by the inductions of reason. We shall conclude this head with a rule for modulation in reading. "In every thing dramatic, colloquial, or of simple narrative, let your modulation be the same as in speaking; but when the subject is flowery, solemn, or dignified, add something to its harmony,

diversify the key-note, and increase the frequency of cadences in proportion to the merit of the composition."

It will readily be seen, that the precepts here drawn from a comparison between speaking and reading, would be very inadequate, were they left destitute of the assistance of *taste*, and the opportunity of *frequently hearing and imitating masterly readers*. And indeed, to these two great auxiliaries we might very properly have referred the whole matter at once, as capable of giving sufficient directions, had we not remembered that our plan required us to found several of our rules as much on the principles of a philosophical analysis, as on those more familiar ones which will be found of greater efficacy in real practice.

IV. *Expression*. 1. There is no composition in music, however perfect as to key and melody, but, in order to do justice to the subject and ideas of the author, will require, in the performing, something more than an exact adherence to *tune and time*. This something is of a nature, too, which perhaps can never be adequately pointed out by any thing graphic, and results entirely from the taste and feeling of the performer. It is that which chiefly gives music its power over the passions, and characterises its notes with what we mean by the words *sweet, harsh, dull, lively, plaintive, joyous*, &c. for it is evident every sound, considered abstractedly, without any regard to the movement, or high and low, may be thus modified. In practical music, this commanding particular is called *Expression*; and as we find certain tones analogous to it frequently coalescing with the modulation of the voice, which indicate our passions and affections (thereby more particularly pointing out the meaning of what we say), the term is usually applied in the same sense to speaking and reading.

These tones are not altogether peculiar to man.—Every animal, that is not dumb, has a power of making several of them. And from their being able, unassisted by words, to manifest and raise their kindred emotions, they constitute a kind of language of themselves. In this language of the heart man is eminently conversant; for we not only understand it in one another, but also in many of the inferior creatures subjected by providence to our service.

The expression here illustrated is one of the most essential articles in good reading, since it not only gives a finishing to the sense, but, on the principles of sympathy and antipathy, has also a peculiar efficacy in interesting the heart. It is likewise an article of most difficult attainment; as it appears from what follows, that a masterly reader ought not only to be able to incorporate it with the modulation properly as to *quality*, but in any degree as to *quantity*.

Every thing written being a proper imitation of speech, expressive reading must occasionally partake of all

5
Expression
as to the
tones of the
voice.

(F) As musical sounds have always an harmonical reference to a key or fundamental note, and to which the mind is still secretly attending, no piece of music would appear perfect, that did not close in it, and so naturally put an end to expectation. But as the tones used in speech are not musical, and therefore cannot refer harmonically to any other sound, there can be no necessity that this terminating sound (and which we immediately below term the *cadence*) should either be used at all, or follow any particular law as to form, &c. farther than what is imposed by taste and custom.

Reading.

all its tones. But from what was said above, of the difference between reading and speaking, it follows, that these signs of the emotions should be less strongly characterised in the former article than in the latter. Again, as several of these tones of expression are in themselves agreeable to the mind, and raise in us agreeable emotions (as those of *pity*, *benevolence*, or whatever indicates *happiness*, and *goodness* of heart), and others disagreeable (as those of a *boisterous*, *malevolent*, and *depraved* nature, &c.) it farther appears, since reading is an art *improving* and not *imitating* nature, that, in whatever degree we abate the expressions of the tones above alluded to in the first case, it would be eligible to make a greater abatement in the latter. But as to the quantities and proportional magnitudes of these abatements, they, like many other particulars of the same nature, must be left solely to the taste and judgment of the reader.

To add one more remark, which may be of service on more accounts than in suggesting another reason for the doctrine above. Let it be remembered, that tho' in order to acquit himself agreeably in this article of expression, it will be necessary every reader should *feel* his subject as well as *understand* it; yet, that he may preserve a proper ease and masterliness of delivery, it is also necessary he should guard against discovering too much emotion and perturbation.

From this reasoning we deduce the following rule, for the tones which indicate the passions and emotions.

"In reading, let all your tones of expression be borrowed from those of common speech, but something more faintly characterised. Let those tones which signify any disagreeable passion of the mind, be still more faint than those which indicate their contrary; and preserve yourself so far from being affected with the subject, as to be able to proceed through it with that peculiar kind of ease and masterliness, which has its charms in this as well as every other art."

We shall conclude this section with the following observation, which relates to speaking as well as reading. When words fall in our way, whose "sounds seem an echo to the sense," as *squirr*, *buzz*, *hum*, *rattle*, *hiss*, *jar*, &c. we ought not to pronounce them in such a manner as to heighten the imitation, except in light and ludicrous subjects. For instance, they should not in any other case be sounded *squir.r.r—buzz.z.z—hum.m.m—r.r.rattle*, &c. On the contrary, when the imitation lies in the *movement*, or *flow and structure of a whole passage* (which frequently happens in poetry), the delivery may always be allowed to give a heightening to it with the greatest propriety; as in the following instances, out of a number more which every experienced reader will quickly recollect.

In these deep solitudes and awful cells,
Where heav'nly-pensive Contemplation dwells,
And ever-musing Melancholy reigns—

Pope's *Eloisa to Abelard*.

With easy course

The vessels glide; unless their speed be stopp'd
By dead calms, that oft lie on these smooth seas.

Dyer's *Fleece*.

Softly sweet in Lydian measure,
Soon be sooth'd her soul to pleasure.

Dryden's *Ode on St Cecilia's day*.

Still gathering force it smokes, and, urg'd amain,
Whirls, leaps, and thunders down impetuous to the plain.

Pope's *Iliad*, B. 13.

For who to dumb forgetfulness a prey,

This pleasing anxious being ere resign'd,
Left the warm precincts of the cheerful day,
Nor cast one longing ling'ring look behind?

Grey's *Elegy*.

6

2. Besides the particular tones and modifications of Expression voice above described, which always accompany and express our inward agitations, nature has in these cases ^{as to the face and gesture.} endowed us with another language, which, instead of the ear, addresses itself to the eye, thereby giving the communications of the heart a double advantage over those of the understanding, and *us* a double chance to preserve so inestimable a blessing. This language is what arises from the different, almost involuntary movements and configurations of the face and body in our emotions and passions, and which, like that of tones, every one is formed to understand by a kind of intuition.

When men are in any violent agitation of mind, this co-operating *expression* (as it is called) of face and gesture is very strongly marked, and totally free from the mixture of any thing which has a regard to gracefulness, or what appearance they may make in the eyes of others. But in ordinary conversation, and where the emotions are not so warm, fashionable people are perpetually insinuating, into their countenance and action, whatever they imagine will add to the ease and elegance of their deportment, or impress on the spectator an idea of their amiableness and breeding. Now, though the above-mentioned natural organical signs of the emotions should accompany every thing spoken, yet from what was observed in the introductory part of this article (like the tones we have just-treated upon), they should in reading be much less strongly expressed; and those suffer the greatest diminution that are in themselves the most ungainly. And as it was in the last section recommended to the reader to preserve himself as far from being affected in all passionate subjects as to be able to keep a temperate command over the various affections of the voice, &c. so under the sanction of this subordinate feeling he may accompany his delivery more frequently with any easy action or change of face, which will contribute to set off his manner, and make it agreeable on the principles of art.

As these calm decorations of action (as we may call them) are not altogether natural, but have their rise from a kind of institution, they must be modelled by the practices of the polite. And though mankind differ from one another scarce more in any particular than in that of talents for adopting the graceful actions of the body, and hence nothing determinate can be said of their nature and frequency, yet even those, most happily calculated to acquit themselves well in their use, might profit by considering that it is better greatly to abridge the display, than to over-do it ever so little. For the peculiar modesty of deportment with which the inhabitants of this kingdom are endowed, makes us in common endeavour to suppress many signs of an agitated mind; and in such cases the bodily ones in particular are very sparingly used. We have also a natural and rooted dislike to any kind of affectation; and to no species,

Reading.

Reading species, that we can recollect, a greater, than to that which is seen in a person who pretends to mimicry and courtly gesture, without possessing the advantages and talents they require; and of which not many people, comparatively speaking, have any remarkable share.

The inference of this is too obvious to need drawing out, and we would particularly recommend it to the consideration of those readers who think the common occurrences of a newspaper, &c. cannot be properly delivered without a good deal of elbow-room.

Although it is impossible to come to particulars in any directions of this kind, yet there is one article of our present subject on which a serviceable remark may be made. In ordinary discourse, when we are particularly pressing and earnest in what we say, the eye is naturally thrown upon those to whom we address ourselves: And in reading, a turn of this organ now and then upon the hearers, when any thing very remarkable or interesting falls in the way, has a good effect in gaining it a proper attention, &c. But this should not be too frequently used; for if so, besides its having a tendency to confound the natural importance of different passages, it may not be altogether agreeable to some to have their own reflections broken in upon by a signal, which might be interpreted to hint at their wanting regulation.

One observation more, and then we shall attempt to recapitulate the substance of this section in the form of a precept. Though it is, when strictly examined, inconsistent, both in speaking and reading, to imitate with action what we are describing, yet as in any thing comic such a practice may suggest ideas that will accord with those of the subject, it may there be now and then indulged in either of these articles.

"In a manner similar to that directed with regard to tones, moderate your bodily expressions of the signs of the emotions. And in order to supply, as it were, this deficiency, introduce into your carriage such an easy gracefulness, as may be consistent with your acquirements in these particulars, and the necessary dread which should ever be present of falling into any kind of affectation or grimace."

V. *Pauses*. Speech consisting of a succession of distinct words, must naturally be liable (both from a kind of accident, and a difficulty there may be in beginning certain sounds or portions of phrases immediately on the ending of certain others) to several small intermissions of voice; of which, as they can have no meaning, nothing farther need here be said. There are, however, some pauses, which the sense necessarily demands; and to these the substance of this section is directed.

Reading. The pauses are in part to distinguish the members of sentences from one another, the terminations of complete periods, and to afford an opportunity for taking breath. Besides this, they have a very graceful effect in the modulation, on the same account they are so essential in music.—In both articles, like blank spaces in pictures, they set off and render more conspicuous whatsoever they disjoin or terminate.

Were language made up of nothing but short colloquial sentences, these pauses, though they might do no harm, and would generally be graceful, would however be superseded as to use by the completeness and narrowness, as we may say, of the meaning. But in more diffuse language, composed of several detached sentences, and which require some degree of attention in order to take in the sense, the intermissions of voice under consideration are of the greatest service, by signifying to the mind the progress and completion of the whole passage. Now, though in extensive and differently formed periods there may be members whose completeness of sense might be conceived of various degrees, and hence might seem to require a set of pauses equally numerous; yet, since the sense does not altogether depend upon these intermissions, and their ratios to one another, if capable of being properly defined, could not be accurately observed, grammarians have ventured to conceive the whole class of pauses as reducible to the four or five kinds now in use, and whose marks and ratios are well known (c); presuming that under the eye of taste; and with the assistance of a particular to be next mentioned, they would not fail in all cases to suggest intermissions of voice suitable to the sense. But in many of these extensive and complex periods, rounded with a kind of redundancy of matter, where the full sense is long suspended, and the final words are not very important, there would be some hazard of a misapprehension of the termination, had we not more evident and infallible notice of it than that which is given by the pause. This notice is the *cadence*, referred to in the section on *Modulation*; which, as is there observed, besides the ornamental variety it affords, appears from these remarks to be a very necessary and serviceable article in perspicuous delivery.

As this cadence naturally accompanies the end of every entire sense, circumstanced as above-mentioned, it may sometimes fall before the *semicolon*, but more generally before the *colon*, as well as the period: For these marks are often found to terminate a complete sense; and in these cases, the relation what follows has to what went before, is signified to the mind by the relative shortness of the stop, and the form of introducing the additional matter. Nor can any bad consequence

(c) Supposing the *comma* (,) one time, the *semicolon* (;) will be two; the *colon* (:) three, and the *period* (.) as also the marks of *interrogation* (?) and *admiration* (!) four of these times. The blank line (— or —), and the *breaks* between *paragraphs*, intimate still greater times; and by the same analogy may be reckoned a double and quadruple period respectively. Now and then these blank lines are placed immediately after the ordinary points, and then they are conceived only as separating for the eye the different natures of the matter;—as a question from an answer,—precept from example,—premises from inferences, &c. in which case their import is evident. But of late some authors have not scrupled to confound these distinctions; and to make a blank serve for all the pauses universally, or the mark of an indefinite rest, the quantity of which is left to the determination of the reader's taste. A practice, it is imagined, too destructive of the intended precision of these typical notices to be much longer adopted.

Reading. quence arise from thus founding distinctions on ratios of time, which it may be said are too nice to be often rightly hit upon: for if a confusion should happen between that of the *colon* and *period*, there is perhaps so trifling a difference between the nature of the passages they succeed, as to make a small inaccuracy of no consequence. And as to the rests of the semicolon and period, it will not be easy to mistake about them, as their ratio is that of two to one. Add to this the power which the matter and introduction of the subsequent passages have to rectify any slight error here made, and we shall be fully satisfied, that the pauses as usually explained, with the cadence above described, and a proper knowledge of the language, will convey sufficient information to the understanding of the constructive nature of the passages after which they are found.

It may be observed, that in natural speech, according to the warmth and agitation of the speaker, the rests are often short and injudiciously proportioned, and hence that every thing thus delivered cannot be so graceful as it might have been from a proper attention to their magnitude and effects.

Pauses then, though chiefly subjected to the sense, are, as was remarked at the outset, serviceable in beautifying the modulation, &c.—And since books are often inaccurately printed as to points, and people's tastes differ some little about their place and value, it appears, that, "although in reading great attention should be paid to the stops, yet a greater should be given to the sense, and their correspondent times occasionally lengthened beyond what is usual in common speech;" which observation contains all that we shall pretend to lay down by way of rule for the management of pauses in the delivery of written language.

As there are two or three species of writing, which have something singular in them, and with regard to the manner in which they should be read, a few particular remarks seem necessarily required, we shall conclude this article with laying them before the reader:

1. OF PLAYS, and such like CONVERSATION-PIECES. Writings of this kind may be considered as intended for two different purposes; one to unfold subject matter for the exercise of theatric powers; and the other to convey amusement, merely as fable replete with pleasing incidents and characteristic manners. Hence there appears to be great latitude for the display of a *consistent* delivery of these performances: for while, on one hand, a good reader of very inferior talents for mimicry may be heard with a tolerable degree of pleasure; on the other, if any person is qualified to give a higher degree of life and force to the dialogue and characters by delivering them as an actor, he must be fully at liberty to start from the confinement of a chair to a posture and area more suited to his abilities; and, if he be not deceived in himself, his hearers will be considerable gainers by the change.—The next article is,

2. SERMONS or other ORATIONS, which in like manner may be conceived intended for a double purpose. First, as matter for the display of oratorical powers; and, secondly, as persuasive discourses, &c. which may be read like any other book. Therefore it appears (for reasons similar to those above) that according as clergymen are possessed of the talents of elocution, they

may consistently either rehearse their sermons, in the manner of an extemporary harangue, or deliver them in the more humble capacity of one who is content to entertain and instruct his hearers with reading to them his own or some other person's written discourse.

That either of these manners of delivery (or a mixture of them), in either of the cases above-mentioned, is agreeable, we find on a careful examination. For this will show us how frequently they run into one another; and that we are so far from thinking such transitions wrong, that, without a particular attention that way, we scarce ever perceive them at all.

3. POETRY is the next and last object of our present remarks. This is a very peculiar kind of writing, and as much different from the language of ordinary discourse as the movements of the dance are from common walking. To ornament and improve whatever is subservient to the pleasures and amusements of life, is the delight of human nature. We are also pleased with a kind of *excess* in any thing which has a power to amuse the fancy, inspire us with enthusiasm, or awaken the soul to a consciousness of its own importance and dignity. Hence one pleasure, at least, takes its rise, that we feel in contemplating the performances of every art; and hence the language of poetry, consisting of a measured rhythm, harmonious cadences, and an elevated picturesque diction, has been studied by the ingenious, and found to have a powerful influence over the human breast in every age and region. There is such an affinity between this language and music, that they were in the earlier ages never separated; and though modern refinement has in a great measure destroyed this union, yet it is with some degree of difficulty in rehearsing these divine compositions we can forget the singing of the muse.

From these considerations (and some kindred ones mentioned in sect. iii.) in repeating verses, they are generally accompanied with a modulation rather more ornamented and musical than is used in any other kind of writing. And accordingly, as there seems to be the greatest propriety in the practice, the rule for this particular in the section just referred to, will allow any latitude in it that can gain the sanction of taste and pleasure.

Rhymes in the lighter and more soothing provinces of poetry are found to have a good effect; and hence (for reasons like those just suggested) it is certainly absurd to endeavour to smother them by a feeble pronunciation, and running one line precipitately into another, as is often affected to be done by many of our modern readers and speakers. By this method they not only destroy one source of pleasure intended by the composer (which though not great is nevertheless genuine), but even often supply its place with what is really disagreeable, by making the rhymes, as they are interruptedly perceived, appear accidental blemishes of a different style, arising from an unmeaning recurrence of similar sounds. With regard then to reading verses terminated with rhyme, the common rule, which directs to pronounce the final words *full*, and to distinguish them by a slight pause even where there is none required by the sense, seems the most rational, and consequently most worthy, of being followed. See DECLAMATION, NARRATION, and ORATORY.

READING, a town of Berkshire in England, pleasantly seated on the river Kenneth, near the confluence with the Thames. It had once a fine rich monastery,

Readings
Re-animat-
tion.

of which there are large ruins remaining. It had also a castle built by king Henry I. but it was afterwards levelled with the ground. It is a corporation, enjoys several privileges, and sends two members to parliament. The two navigable rivers render it a fit place for trade. W. Long. 1. o. N. Lat. 51. 25.

READINGS, or *Various READINGS*, in criticism, are the different manner of reading the texts of authors in ancient manuscripts, where a diversity has arisen from the corruption of time, or the ignorance of copyists. A great part of the business of critics lies in settling the readings by confronting the various readings of the several manuscripts, and considering the agreement of the words and sense.

Readings are also used for a sort of commentary or gloss on a law, text, passage, or the like, to show the sense an author takes it in, and the application he conceives to be made of it.

RE-AGGRAVATION, in the Romish ecclesiastical law, the last monitory, published after three admonitions, and before the last excommunication. Before they proceed to fulminate the last excommunication, they publish an aggravation, and a re-aggravation. Fevret observes, that in France the minister is not allowed to come to re-aggravation, without the permission of the bishop or official, as well as that of the lay judge: See **EXCOMMUNICATION**.

REAL (Cæsar Vichard de St), a polite French writer, son of a counsellor to the senate of Chambery in Savoy. He came young to France, distinguished himself at Paris by several ingenious productions, and resided there a long time without title or dignity, intent upon literary pursuits. He died at Chambery in 1692, advanced in years, though not in circumstances. He was a man of great parts and penetration, a lover of the sciences, and particularly fond of history. A complete edition of his works was printed at Paris, in 3 vols 4to, 1745, and another in 6 vols 12mo.

REAL Presence. See **TRANSUBSTANTIATION**.

REALGAR. See **CHEMISTRY**, n° 1279.

REALISTS, a sect of school-philosophers formed in opposition to the nominalists. Under the Realists are included the Scotists, Thomists, and all excepting the followers of Ockham. Their distinguishing tenet is, that universals are realities, and have an actual existence out of an idea or imagination; or, as they express it in the schools, *a parte rei*; whereas the nominalists contend, that they exist only in the mind, and are only ideas, or manners of conceiving things.—Dr Odo, or Oudard, a native of Orleans, afterwards abbot of St Martin de Tournay, was the chief of the sect of the realists. He wrote three books of dialectics, where, on the principles of Boethius and the ancients, he maintained that the object of that art is things, not words; whence the sect took its rise and name.

REALITY, in the schools, a diminutive of *res*, "thing," first used by the Scotists, to denote a thing which may exist of itself; or which has a full and absolute being of itself, and is not considered as a part of any other.

REALM, a country which gives its head or governor the denomination of a king.

RE-ANIMATION means the reviving or restoring to life those who are apparently dead. Sudden death is

dreaded by every human being, and it is one of those evils against which the Church of England prays in her Litany. Accidents, however, cannot always be prevented; but, after they have happened, it is often possible to prevent their effects. This by the establishment of what with great propriety has been called the *Humane Society*, has been abundantly proved: for, in the course of 12 years immediately after their institution, they were the means of saving the lives of 850 persons, who otherwise would in all human probability have been lost to the community. Since that period, they have saved many more; and various persons, even in the most distant parts of the kingdom, by following their directions, have done the same. To preserve one human being from premature death, we must consider as of the utmost consequence both as citizens and Christians; how much more the preservation of thousands. It appears from the writings of Doctors Mead, Winslow, Bruhier, Fothergill, Haller, Lecat, Tissot, Van Engelen, Gummer, and others, that they had prepared the way for institutions similar to the Humane Society: for in their works they have elucidated the principles on which they go, and furnished directions for the practice they favour. See **DEATH**, **Premature INTERMENT**, and **DROWNING**.

REAR; a term frequently used in composition, to denote something behind, or backwards, in respect of another; in opposition to *van*.

REAR of an ARMY, signifies, in general, the hindermost part of an army, battalion, regiment, or squadron; also the ground behind either.

REAR-GUARD, is that body of an army which marches after the main-body; for the march of an army is always composed of an advance-guard, a main-body, and a rear-guard; the first and last commanded by a general. The old grand-guards of the camp always form the rear-guard of the army, and are to see that every thing come safe to the new camp.

REAR Half-files, are the three hindmost ranks of the battalion, when it is drawn up fix deep.

REAR-Line, of an army encamped, is always 1200 feet at least from the centre line; both of which run parallel to the front line, as also to the reserve.

REAR-Rank, is the last rank of a battalion, when drawn up, and generally 16 or 18 feet from the centre-line when drawn in open order.

REASON, a faculty or power of the mind, whereby it distinguishes good from evil, truth from falsehood. See **METAPHYSICS**.

REASONING, **RATIOCINATION**, the exercise of that faculty of the mind called *reason*; or it is an act or operation of the mind, deducing some unknown proposition from other previous ones that are evident and known. See **LOGIC**, Part III.

REAUMUR (Rene Antoine Ferchault, Sieur de), a person distinguished for his laborious researches into natural knowledge, was born at Rochelle in 1683, of a family belonging to the law. After having finished his early studies in the place of his birth, he began a course of philosophy at Portiers, and of civil law at Bourges; but soon relinquished the latter, to apply himself, according to his taste, to mathematics, physics, and natural history. Being come to Paris, he was received into the Academy of Sciences in 1708. From that hour he was wholly employed in natural history, to which his inclination

Reay
Reaumur.

clination particularly led him, and his inquiries were not confined to any one part of it. His memoirs, his observations, his discoveries on the formation of shells, spiders, muscles, the marine flea, the berry which affords the purple colour, and on the cause of the numbness of the torpedo, excited the curiosity of the public, and early procured our author the character of an able, curious, and entertaining naturalist. Filled with zeal for the welfare and advantage of society, and the progress and perfection of arts, he endeavoured in all his researches to promote the public good. We were indebted to him for the discovery of the Turquoise mines in Languedoc. He also found out a substance, which is used to give false stones a colour, which is obtained from a certain fish called in the French *Able* or *Ablete* * on account of its whiteness, and which is the *Bleak* or *Blay* of our writers †. His experiments on the art of turning iron into steel obtained him a pension of 12,000 livres; and this reward was continued to the Academy to support the expence which might accrue in this art.

See Balon, 19.; and Pennant's Zoology, vol. iii. 315. See Cyrenus, 9. See Porcelain.

He continued his inquiries on the art of making tin and porcelain ‡, and endeavoured to render our thermometers more useful than those of former times: he composed a curious history of rivers where gold dust is found in France; and gave so simple and easy a detail of the art of gathering this dust, that persons have been employed for that purpose.

He also made curious and important observations on the nature of flints, on the banks of fossil shells, from whence is obtained in Touraine an excellent manure for land; as likewise on birds and their preservation, on their method of building nests; on insects; and a great number of other subjects, not less curious than useful.

He imagined at first, that a certain varnish would keep eggs fresh; but the waste of time and money, &c. showed him the inconveniences of such a process. He afterwards adopted the method practised for time immemorial in Greece and the islands of the Archipelago, which is to steep or immerse eggs in oil, or melted fat; by this means, not being exposed to the air or to frost, they are well preserved, and contract no bad smell. Another experiment still more important, made by our author, was to introduce into France the art of hatching fowl and birds, as practised in Egypt, without covering the eggs. Active, sedulous, and attentive, he was early in his study, often at six in the morning. Exact in his experiments and observations, he let no circumstance escape him. His writings must be of great use to future philosophers. In society, he was distinguished through life for his modest and agreeable behaviour. His probity, benevolence, goodness of heart, and other amiable qualities, as well natural as acquired, endeared him to his countrymen. He died in the 76th year of his age, on the 18th of October 1757, and left this world filled with sentiments of piety. His death was the consequence of a fall, which happened at the castle of Barnardiére on the Maine, where he went to pass his vacation. He bequeathed to the Academy of Sciences his manuscripts and all his natural productions. His works are, 1. A very great number of memoirs and observations on different parts of natural history; they are printed in the collections of the Academy of Sciences. 2. A large work printed separately in 6 vols in 4to, intitled, A Natural History of Insects. This important

work contains a description of vast numbers of caterpillars, moths, gall insects, flies with two and four wings, lady-birds, and those ephemeron flies which live only in that form a few hours; and lastly, of those singular and wonderful insects which are called *polytes*, which being cut into several pieces, each piece lives, grows, and becomes an insect, and affords to our eyes a great number of prodigies*. The works of M. de Reaumur are exact, curious, interesting, and very ingenious. They are written with much candour, clearness, and elegance; but it must be acknowledged his manner is somewhat too diffuse. But we must not deceive the reader; he often raises our expectations, and does not give us all the satisfaction we promise ourselves from his writings. His method of raising poultry, in particular, rather disappoints us. He spared neither care, time, nor expence, to render it practicable; he flattered himself and his countrymen with the greatest hopes; but notwithstanding his assiduous industry, and vast charges, it proved abortive. The late M. l'Advocat recommended him to obtain better information from Egypt on the subject; and if possible to procure a person versed in the art to instruct him in it; but his death prevented the completion of the scheme. If the native of Egypt had arrived, showed M. de Reaumur a better method than his own, and practised it with success, as in his country, the community would have been benefited; on the other hand he would have seen, had it failed, that the climate of France was not proper for such experiments. M. Maillet, consul at Cairo, to whom Monsieur the regent had written to obtain the art, offered to send over a native of Egypt, if the government would pay the expence of his voyage, and allow him a pension of 1500 livres. M. Maillet rightly judged, when he preferred this method of proceeding. M. de Reaumur was not ignorant of the design; but he flattered himself, that his efforts would be successful without further aid, and thought he should acquire some honour. He certainly had great talents, industry, sagacity, and every other requisite which are necessary in such attempts; but it is morally impossible that a single man, in a different climate, can attain such knowledge in an art as those who live in a more favourable country, and have had the experience of many ages to profit by: however M. de Reaumur may have been unsuccessful, posterity is indebted to him for his repeated trials. He has removed some difficulties in the road, and those that travel it may discover what he only saw at a distance.

Reaumur
||
Rebellion,

* See Po.
lytes.

REAUMURIA, in botany: A genus of the pentagynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The calyx is hexaphyllous, and there are five petals; the capsule is unilocular, quinquevalved, and polyspermous.

REBATE, or REBATEMENT, in commerce, a term much used at Amsterdam for an abatement in the price of several commodities, when the buyer, instead of taking time, advances ready money.

REBATEMENT, in heraldry, a diminution or abatement, of the bearings in a coat of arms. See ABATEMENT.

REBELLION, *Rebellio*, among the Romans, was where those who had been formerly overcome in battle, and yielded to their subjection, made a second resistance: but with us it is generally used for the taking

Rebellious up of arms traiterously against the king, whether by natural subjects, or others when once subdued; and the word *rebel* is sometimes applied to him who wilfully breaks a law; also to a villain disobeying his lord.

Rebutter.

There is a difference between enemies and rebels. Enemies are those who are out of the king's allegiance: therefore subjects of the king, either in open war, or rebellion, are not the king's enemies, but traitors. And David Prince of Wales, who levied war against Edw. I. because he was within the allegiance of the king, had sentence pronounced against him as a traitor and rebel. Private persons may arm themselves to suppress rebels, enemies, &c.

REBELLIOUS ASSEMBLY, is a gathering together of twelve persons or more, intending or going about to practise or put in use unlawfully, of their own authority, any thing to change the law or statutes of the realm; or to destroy the inclosures of any ground, or banks of any fish-pond, pool, or conduit, to the intent the same shall lie waste and void; or to destroy the deer in any park, or any warren of conies, dove-houses, or fish in ponds; or any house, barns, mills, or bays; or to burn stacks of corn; or abate rents, or prices of victuals, &c.

REBUS, an enigmatical representation of some name, &c. by using figures or pictures instead of words, or parts of words. Camden mentions an instance of this absurd kind of wit in a gallant who expressed his love to a woman named *Rose Hill*, by painting in the border of his gown a rose, a hill, an eye, a loaf, and a well; which, in the style of the rebus, reads, "*Rose Hill I love well.*" This kind of wit was long practised by the great, who took the pains to find devices for their names. It was, however, happily ridiculed by Ben Johnson, in the humorous description of Abel Drugger's device in the *Alchemist*; by the Spectator, in the device of Jack of Newberry; at which time the rebus, being raised to sign-posts, was grown out of fashion at court.

REBUS is also used by the chemical writers sometimes to signify four milk, and sometimes for what they call the ultimate matter of which all bodies are composed.

REBUS, in heraldry, a coat of arms which bears an allusion to the name of the person; as three castles, for Castleton; three cups, for Butler; three conies, for Conisby; a kind of bearings which are of great antiquity.

REBUTTER (from the Fr. *bouter*, i. e. *repellere*, to put back or bar), is the answer of defendant to plaintiff's *surrejoinder*; and plaintiff's answer to the rebutter is called a *surrebutter*: but it is very rare the parties go so far in pleading.

Rebutter is also where a man by deed or fine grants to warranty any land or hereditament to another; and the person making the warranty, or his heir, sues him to whom the warranty is made, or his heir or assignee, for the same thing; if he who is so sued plead the deed or fine with warranty, and pray judgment, if the plaintiff shall be received to demand the thing which he ought to warrant to the party against the warranty in the deed, &c. this is called a *rebutter*. And if I grant to a tenant to hold without impeachment of waste, and afterwards implead him for waste done, he may debar me of this action by shewing my grant, which is a rebutter.

RECAPITULATION, is a summary, or a concise and transient enumeration of the principal things insisted on in the preceding discourse, whereby the force of the whole is collected into one view. See **ORATORY**, n° 37 and 127.

RECEIPT, or **RECEIT**, in commerce, an acquittance, or discharge, in writing, intimating that the party has received a certain sum of money, either in full for the whole debt, or in part, or on account.

RECEIVER, in pneumatics, a glass vessel for containing the thing on which an experiment in the air-pump is to be made.

RECEIVER, *receptor* or *receptator*, in law, is commonly understood in a bad sense, and used for such as knowingly receive stolen goods from thieves, and conceal them. This crime is felony, and the punishment is transportation for 14 years.

RECENSIO was an account taken by the censors, every lustrum, of all the Roman people. It was a general survey, at which the equites, as well as the rest of the people, were to appear. New names were now put upon the censor's list, and old ones cancelled. The *recensio*, in short, was a more solemn and accurate sort of *probatio*, and answered the purpose of a review, by showing who were fit for military service.

RECEPTACULUM, in botany, one of the seven parts of fructification, defined by Linnæus to be the base which connects or supports the other parts.

RECEPTACULUM Chyli, or *Pecquet's Reservoir*, the reservoir or receptacle for the chyle, situated in the left side of the upper vertebra of the loins, under the aorta and the vessels of the left kidney.

RECHABITES, a kind of religious order among the ancient Jews, instituted by Jonadab the son of Rechab, comprehending only his own family and posterity. Their founder prescribed them three things: first, not to drink any wine; secondly, not to build any houses, but to dwell in tents; and thirdly, not to sow any corn, or plant vines.

The Rechabites observed these rules with great strictness, as appears from Jer. xxxv. 6, &c. Whence St Jerome, in his 13th epistle to Paulinus, calls them *monachi*, monks. Jonadab, their founder, lived under Jehoshaphat, king of Judah, contemporary with Jehu king of Israel; his father Rechab, from whom his posterity were denominated, descended from Raguel or Jethro, father-in-law to Moses, who was a Kenite, or of the race of Ken: whence Kenite and Rechabite are used as synonymous in Scripture.

RECHEAT, in hunting, a lesson which the huntsman plays on the horn, when the hounds have lost their game, to call them back from pursuing a counter scent.

RECIPE, in medicine, a prescription, or remedy, to be taken by a patient: so called because always beginning with the word *recipe*, i. e. *take*; which is generally denoted by the abbreviation *Rj*.

RECIPROCAL, in general, something that is mutual, or which is returned equally on both sides, or that affects both parties alike.

RECIPROCAL Terms, among logicians, are those which have the same signification; and consequently are convertible, or may be used for each other.

RECIPROCAL, in mathematics, is applied to quantities

Reciprocal ties which multiplied together produce unity. Thus

Recluse. $\frac{1}{x}$ and x , y and $\frac{1}{y}$, are reciprocal quantities. Likewise

$\frac{1}{x}$ is said to be the reciprocal of x , which is again the reciprocal of $\frac{1}{x}$.

RECIPROCAL Figures, in geometry, those which have the antecedents and consequents of the same ratio in both figures.

RECIPROCAL Proportion, is when in four numbers the fourth is less than the second by so much as the third is greater than the first, and *vice versa*. See PROPORTION and ARITHMETIC, chap. vi. Great use is made of this reciprocal proportion by Sir Isaac Newton and others, in demonstrating the laws of motion.

RECITAL, in law, means the rehearsal or making mention in a deed or writing of something which has been done before.

RECITATIVO, or RECITATIVE, in music, a kind of singing, that differs but little from ordinary pronunciation; such as that in which the several parts of the liturgy are rehearsed in cathedrals; or that wherein the actors commonly deliver themselves on the theatre at the opera, when they are to express some action or passion; to relate some event; or reveal some design.

RECKENHAUSEN, a strong town of Cologne, in Germany, in the middle territory of that name. The abbess of its nunnery has power of punishing offenders with death, and she alone is obliged to the vow of chastity.

RECKONING, or a Ship's RECKONING, in navigation, is that account whereby at any time it may be known where the ship is, and on what course or courses she is to steer, in order to gain her port; and that account taken from the log-board is called the *dead reckoning*. See NAVIGATION.

RECLAIMING, or RECLAMING, in our ancient customs, a lord's pursuing, prosecuting, and recalling, his vassal, who had gone to live in another place without his permission.

Reclaiming is also used for the demanding of a person, or thing, to be delivered up to the prince or state to which it properly belongs; when, by any irregular means, it is come into another's possession.

RECLAIMING, in falconry, is taming a hawk, &c. and making her gentle and familiar.

A partridge is said to reclaim, when she calls her young ones together, upon their scattering too much from her.

RECLINATION of a plane in dialling. See DIALLING.

RECLUSE, among the Papists, a person shut up in a small cell of an hermitage, or monastery, and cut off, not only from all conversation with the world, but even with the house. This is a kind of voluntary imprisonment, from a motive either of devotion or penance.

The word is also applied to incontinent wives, whom their husbands procure to be thus kept in perpetual imprisonment in some religious house.

Recluses were anciently very numerous. They took an oath never to stir out of their retreat: and having entered it, the bishop set his seal upon the door; and the recluse was to have every thing necessary for the support of life conveyed to him through a window. If

he was a priest, he was allowed a small oratory, with a window, which looked into the church, through which he might make his offerings at the mass, hear the singing, and answer those who spoke to him; but this window had curtains before it, so that he could not be seen. He was allowed a little garden, adjoining to his cell, in which he might plant a few herbs, and breathe a little fresh air. If he had disciples, their cells were contiguous to his, with only a window of communication, through which they conveyed necessaries to him, and received his instructions. If a recluse fell sick, his door might be opened for persons to come in and assist him, but he himself was not to stir out.

RECOGNITION, in law, an acknowledgment; a word particularly used in our law-books for the first chapter of the statute 1 Jac. I. by which the parliament acknowledged, that, after the death of queen Elizabeth, the crown had rightfully descended to king James.

RECOGNIZANCE, in law, is an obligation of record, which a man enters into before some court of record or magistrate duly authorised, with condition to do some particular act; as to appear at the assizes, to keep the peace, to pay a debt, or the like. It is in most respects like another bond: the difference being chiefly this, that the bond is the creation of a fresh debt or obligation *de novo*, the recognizance is an acknowledgment of a former debt upon record; the form whereof is, "that A. B. doth acknowledge to owe to our lord the king, to the plaintiff, to C. D. or the like, the sum of ten pounds," with condition to be void on performance of the thing stipulated: in which case the king, the plaintiff, C. D. &c. is called the cognizee, *is cui cognoscitur*; as he that enters into the recognizance is called the cognizor, *is qui cognoscit*. This being certified to, or taken by the officer of some court, is witnessed only by the record of that court, and not by the party's seal: so that it is not in strict propriety a deed, though the effects of it are greater than a common obligation; being allowed a priority in point of payment, and binding the lands of the cognizor from the time of enrolment on record.

RECOIL, or REBOUND, the starting backward of a fire-arm after an explosion. Merfennus tells us, that a cannon 12 feet in length, weighing 6400 lb. gives a ball of 24 lb. an uniform velocity of 640 feet per second. Putting, therefore, $W = 6400$, $w = 14$, $V = 640$, and $v =$ the velocity with which the cannon recoils; we shall have (because the momentums of the cannon

and ball are equal) $Wv = wV$; and so $v = \frac{wV}{W} = \frac{24 \times 64}{6400} = 2,4$; that is, it would recoil at the rate of 2,4 feet per second, if free to move.

RECOLLECTION, a mode of thinking, by which ideas fought after by the mind are found and brought to view.

RECONNOITRE, in military affairs, implies to view and examine the state of things, in order to make a report thereof.

Parties ordered to reconnoitre are to observe the country and the enemy; to remark the routes, conveniences, and inconveniences of the first; the position, march, or forces of the second. In either case, they should have an expert geographer, capable of taking plans

Recognition
Reconnoitre.

Record
||
Recovery.

plans readily: he should be the best mounted of the whole, in case the enemy happen to scatter the «scorte», that he may save his works and ideas. See WAR.

RECORD, an authentic testimony in writing, contained in rolls of parchment, and preserved in a court of record. See COURT.

Trial by RECORD, a species of trial which is used only in one particular instance: and that is where a matter of record is pleaded in any action, as a fine, a judgment, or the like; and the opposite party pleads, *nul tiel record*, that there is no such matter of record existing. Upon this, issue is tendered and joined in the following form, “and this he prays may be inquired of by the record, and the other doth the like;” and hereupon the party pleading the record has a day given him to bring it in, and proclamation is made in court for him to “bring forth the record by him in pleading alleged, or else he shall be condemned;” and, on his failure, his antagonist shall have judgment to recover. The trial, therefore, of this issue, is merely by the record: for, as Sir Edward Coke observes, a record or enrolment is a monument of so high a nature, and importeth in itself such absolute verity, that if it be pleaded that there is no such record, it shall not receive any trial by witness, jury, or otherwise, but only by itself. Thus titles of nobility, as whether earl or not earl, baron or not baron, shall be tried by the king’s writ or patent only, which is matter of record. Also in case of an alien, whether alien friend or enemy, shall be tried by the league or treaty between his sovereign and ours; for every league or treaty is of record. And also, whether a manor be held in ancient demesne or not, shall be tried by the record of domesday in the king’s exchequer.

RECORDER, a person whom the mayor and other magistrates of a city or corporation associate to them, for their better direction in matters of justice and proceedings in law; on which account this person is generally a counsellor, or other person well skilled in the law.

The recorder of London is chosen by the lord mayor and aldermen; and as he is held to be the mouth of the city, delivers the judgment of the courts therein, and records and certifies the city-customs. See LONDON, n° 38.

RECOVERY, or *Common RECOVERY*, in English law, a species of assurance by matter of record; concerning the original of which it must be remarked, that common recoveries were invented by the ecclesiastics to elude the statutes of mortmain (see TAIL); and afterwards encouraged by the finesse of the courts of law in 12 Edward IV. in order to put an end to all fettered inheritances, and bar not only estates-tail, but also all remainders and reversions expectant thereon. We have here, therefore, only to consider, first, the nature of a common recovery; and, secondly, its force and effect.

1. A common recovery is a suit or action, either actual or fictitious: and in it the lands are recovered against the tenant of the freehold; which recovery, being a supposed adjudication of the right, binds all persons, and vests a free and absolute fee-simple in the recoverer. To explain this as clearly and concisely as possible, let us, in the first place, suppose David Edwards to be tenant of the freehold, and desirous to suffer a common recovery, in order to bar all entails, remain-

ders, and reversions, and to convey the same in fee-simple, to Francis Golding. To effect this, Golding is to bring an action against him for the lands; and he accordingly sues out a writ called a *præcipe quod reddat*, because these were its initial or most operative words when the law-proceedings were in Latin. In this writ the demandant Golding alleges, that the defendant Edwards (here called the tenant) has no legal title to the land; but that he came into possession of it after one Hugh Hunt had turned the demandant out of it. The subsequent proceedings are made up into a record or recovery roll, in which the writ and complaint of the demandant are first recited: whereupon the tenant appears, and calls upon one Jacob Morland, who is supposed, at the original purchase, to have warranted the title to the tenant; and thereupon he prays, that the said Jacob Morland may be called in to defend the title which he so warranted. This is called the *voucher*, “*vocatio*,” or calling of Jacob Morland to warranty; and Morland is called the *vouchee*. Upon this Jacob Morland, the vouchee, appears, is impleaded, and defends the title. Whereupon Golding the demandant desires leave of the court to imparl, or confer with the vouchee in private; which is (as usual) allowed him. And soon afterwards the demandant Golding returns to court; but Morland the vouchee disappears, or makes default. Whereupon judgment is given for the demandant Golding, now called the *recoverer*, to recover the lands in question against the tenant Edwards, who is now the *recoveree*: and Edwards has judgment to recover of Jacob Morland lands of equal value, in recompense for the lands so warranted by him, and now lost by his default; which is agreeable to the doctrine of warranty mentioned in the preceding chapter. This is called the *recompense*, or *recovery in value*. But Jacob Morland having no lands of his own, being usually the crier of the court, who, from being frequently thus vouched, is called the *common vouchee*, it is plain that Edwards has only a nominal recompense for the lands so recovered against him by Golding; which lands are now absolutely vested in the said recoverer by judgment of law, and seisin thereof is delivered by the sheriff of the county. So that this collusive recovery operates merely in the nature of a conveyance in fee-simple, from Edwards the tenant in tail to Golding the purchaser.

The recovery here described, is with a single voucher only; but sometimes it is with a double, treble, or farther voucher, as the exigency of the case may require. And indeed it is now usual always to have a recovery with double voucher at the least: by first conveying an estate of freehold to any indifferent person, against whom the *præcipe* is brought; and then he vouches the tenant in tail, who vouches over the common vouchee. For, if a recovery be had immediately against tenant in tail, it bars only such estate in the premises of which he is then actually seised; whereas if the recovery be had against another person, and the tenant in tail be vouched, it bars every latent right and interest which he may have in the lands recovered. If Edwards therefore be tenant of the freehold in possession, and John Barker be tenant in tail in remainder, here Edwards doth first vouch Barker, and then Barker vouches Jacob Morland the common vouchee; who is always the last person vouched, and always makes default; whereby the demandant Golding recovers the land against the tenant Edwards

Blackst.
Comment.

Recovery. Edwards, and Edwards recovers a recompense of equal value against Barker the first vouchee; who recovers the like against Morland the common vouchee, against whom such ideal recovery in value is always ultimately awarded.

This supposed recompense in value is the reason why the issue in tail is held to be barred by a common recovery. For, if the recoveree should obtain a recompense in lands from the common vouchee (which there is a possibility in contemplation of law, though a very improbable one, of his doing), these lands would supply the place of those so recovered from him by collusion, and would descend to the issue in tail. The reason will also hold with equal force as to most remaindermen and reversioners, to whom the possibility will remain land revert, as a full recompense for the reality which they were otherwise entitled to: but it will not always hold; and therefore, as Pigott says, the judges have been even *astuti*, in inventing other reasons to maintain the authority of recoveries. And, in particular, it hath been said, that though the estate-tail is gone from the recoveree; yet it is not destroyed, but only transferred, and still subsists; and will ever continue to subsist (by construction of law) in the recoveror, his heirs and assigns: and as the estate-tail so continues to subsist for ever, the remainders or reversioners expectant on the determination of such estate-tail can never take place.

To such awkward shifts, such subtle refinements, and such strange reasoning, were our ancestors obliged to have recourse, in order to get the better of that stubborn statute *de donis*. The design for which these contrivances were set on foot, was certainly laudable; the unrivetting the fetters of estates-tail, which were attended with a legion of mischiefs to the commonwealth: but, while we applaud the end, we cannot but admire the means. Our modern courts of justice have indeed adopted a more manly way of treating the subject; by considering common recoveries in no other light than as the formal mode of conveyance by which tenant in tail is enabled to alienate his lands. But, since the ill consequences of fettered inheritances are now generally seen and allowed, and of course the utility and expedience of setting them at liberty are apparent, it hath often been wished that the process of this conveyance was shortened, and rendered less subject to niceties, by either totally repealing the statute *de donis*; which perhaps, by reviving the old doctrine of conditional fees, might give birth to many litigations: or by vesting in every tenant in tail, of full age, the same absolute fee-simple at once, which now he may obtain whenever he pleases, by the collusive fiction of a common recovery; though this might possibly bear hard upon those in remainder or reversion, by abridging the chances they would otherwise frequently have, as no recovery can be suffered in the intervals between term and term, which sometimes continue for near six months together: or, lastly, by empowering the tenant in tail to bar the estate-tail by a solemn deed, to be made in term-time, and enrolled in some court of record; which is liable to neither of the other objections, and is warranted not only by the usage of our American colonies, but by the precedent of the statute 21 Jac. I. c. 19 which, in the case of a bankrupt tenant in tail, empowers his commissioners to sell the estate at any time, by deed indented and enrolled. And if, in so national

a concern, the emoluments of the officers concerned in passing recoveries are thought to be worthy attention, those might be provided for in the fees to be paid upon each enrollment.

2. The force and effect of common recoveries may appear, from what has been said, to be an absolute bar not only of all estates tail, but of remainders and reversions expectant on the determination of such estates. So that a tenant in tail may, by this method of assurance, convey the lands held in tail to the recoverer, his heirs and assigns, absolutely free and discharged of all conditions and limitations in tail, and of all remainders and reversions. But, by statute 34 & 35 H. VIII. c. 20. no recovery had against tenant in tail of the king's gift, whereof the remainder or reversion is in the king, shall bar such estate-tail, or the remainder or reversion of the crown. And by the statute 11 H. VII. c. 20. no woman, after her husband's death, shall suffer a recovery of lands settled on her by her husband, or settled on her husband and her by any of his ancestors. And by statute 14 Eliz. c. 8. no tenant for life, of any sort, can suffer a recovery so as to bind them in remainder or reversion. For which reason, if there be tenant for life, with remainder in tail, and other remainders over, and the tenant for life is desirous to suffer a valid recovery, either he, or the tenant to the *præcipe* by him made, must vouch the remainder-man in tail, otherwise the recovery is void: but if he does vouch such remainder-man, and he appears and vouches the common vouchee, it is then good; for if a man be vouched and appears, and suffers the recovery to be had, it is as effectual to bar the estate-tail as if he himself were the recoveree.

In all recoveries, it is necessary that the recoveree, or tenant to the *præcipe*, as he is usually called, be actually seized of the freehold, else the recovery is void. For all actions to recover the seisin of lands must be brought against the actual tenant of the freehold, else the suit will lose its effect; since the freehold cannot be recovered of him who has it not. And, though these recoveries are in themselves fabulous and fictitious, yet it is necessary that there be *actores fabulae*, properly qualified. But the nicety thought by some modern practitioners to be requisite in conveying the legal freehold, in order to make a good tenant to the *præcipe*, is removed by the provisions of the statute 14 Geo. II. c. 20. which enacts, with a retrospect and conformity to the ancient rule of law, that, though the legal freehold be vested in lessees, yet those who are entitled to the next-freehold estate in remainder, or reversion, may make a good tenant to the *præcipe*; and that, though the deed or fine which creates such tenant be subsequent to the judgment of recovery, yet if it be in the same term, the recovery shall be valid in law: and that though the recovery itself do not appear to be entered, or be not regularly entered on record, yet the deed to make a tenant to the *præcipe* and declare the uses of the recovery, shall after a possession of 20 years be sufficient evidence on behalf of a purchaser for valuable consideration, that such recovery was duly suffered.

RECOVERY of persons drowned, or apparently dead See RE-ANIMATION, and the articles there referred to.

RECREANT, COWARDLY, *Faint-hearted*; formerly a word very reproachful. See BATTEL.

RECREMENT, in chemistry, some superfluous matter separated from some other that is useful; in which

Recovery, Recrement.

Recrimination which sense it is the same with *scoria, feces*, and *excrements*.

Rectory.

RECRIMINATION, in law, an accusation brought by the accused against the accuser upon the same fact.

RECRUITS, in military affairs, new-raised soldiers designed to supply the place of those who have lost their lives in the service, or who are disabled by age or wounds.

RECTANGLE, in geometry, the same with a right-angled parallelogram. See GEOMETRY.

RECTIFICATION, in chemistry, is nothing but the repetition of a distillation or sublimation several times, in order to render the substance purer, finer, and freer from aqueous and earthy parts.

RECTIFICATION of Spirits. See DISTILLATION.

RECTIFIER, in navigation, an instrument consisting of two parts, which are two circles, either laid one upon, or let into the other, and so fastened together in their centres, that they represent two compasses, one fixed, the other moveable; each of them divided into the 32 points of the compass, and 360°, and numbered both ways, from the north and the south, ending at the east and west, in 90°.

The fixed compass represents the horizon, in which the north and all the other points of the compass are fixed and immovable.

The moveable compass represents the mariner's compass; in which the north and all other points are liable to variation.

In the centre of the moveable compass is fastened a silk thread, long enough to reach the outside of the fixed compass. But if the instrument be made of wood, there is an index instead of the thread.

Its use is to find the variation of the compass, to rectify the course at sea; having the amplitude or azimuth given.

RECTIFYING the GLOBE. See GEOGRAPHY, p. 656.

RECTILINEAR, in geometry, right-lined; thus figures whose perimeter consists of right lines, are said to be rectilinear.

RECTITUDE, in philosophy, refers either to the act of judging or of willing; and therefore whatever comes under the denomination of rectitude, is either what is true or what is good, these being the only objects about which the mind exercises its two faculties of judging and willing.

Moral rectitude, or 'uprightness, is the choosing and pursuing those things which the mind, upon due inquiry and attention, clearly perceives to be good; and avoiding those that are evil. See MORAL Philosophy.

RECTOR, a term applied to several persons whose offices are very different: as, 1. The rector of a parish is a clergyman that has the charge and cure of a parish, and possesses all the tithes, &c. 2. The same name is also given to the chief elective officer in several foreign universities, particularly in that of Paris, and also in those of Scotland. It is also applied to the head master of large schools in Scotland, as in the high school of Edinburgh. 3. Rector is also used in several convents for the superior officer who governs the house: and the Jesuits give this name to the superiors of such of their houses as are either seminaries or colleges.

RECTORY, a parish-church, parsonage, or spiritual living, with all its rights, tithes, and glebes.

RECTORY is also sometimes used for the rector's mansion or parsonage-house.

RECTUM, in anatomy, the third and last of the large intestines or guts. See ANATOMY, n° 93.

RECTUS, in anatomy, a name common to several pairs of muscles, so called on account of the straightness of their fibres.

RECUPERATORES, among the Romans, were commissioners appointed to take cognizance of private matters in dispute, between the subjects of the state and foreigners, and to take care that the former had justice done them. It came at last to be used for commissioners, to whom the prætor referred the determination of any affair between one subject and another.

RECURRENTS, in anatomy, a name given to several large branches of nerves sent out by the par vagum from the upper part of the thorax to the larynx.

RECURVIROSTRA, in ornithology; a genus belonging to the order of grallæ of Linnæus, and that of palmipedes of Pennant and Latham. The bill is long, subulated, bent back, sharp and flexible at the point. The feet are webbed, and furnished with three toes forwards, and a short one behind. Mr Latham notes of this genus three species, viz. the Avosetta, or the one commonly known, the Americana, and the Alba. This last, it is probable, has some affinity to the Americana. The recurvirostra avosetta is about the size of a lapwing in body, but has very long legs. The substance of the bill is soft, and almost membranous at its tip; it is thin, weak, slender, compressed horizontally, and incapable of defence or effort. These birds are variegated with black and white, and during the winter are frequent on the eastern shores of Great Britain. They visit also the Severn, and sometimes the pools of Shropshire. They feed on worms and insects, which they scoop out of the sand with their bills. They lay two eggs, white, with a greenish hue, and large spots of black; these eggs are about the size of a pigeon's.— They are found also in various parts of the continent of Europe, in Russia, Denmark, and Sweden, but they are not numerous. They are also found in Siberia, but oftener about the salt lakes of the Tartarian desert, and about the Caspian sea. They are found likewise on the coasts of Picardy in France in April and November, and at Orleans, but rarely. In breeding-time they are very plentiful on the coasts of Bas Poitou. They do not appear to wander farther south in Europe than Italy. Whether from timidity or address, the avoset shuns snares, and is not easily taken. The American avoset is rather larger and longer than the last. The bill is similar, and its colour black: the forehead is dusky white: the head, neck, and upper part of the breast, are of a deep cream-colour: the lower parts of the neck behind white: the back is black, and the under parts from the breast pure white: the wings are partly black, partly white, and partly ash-coloured. These birds inhabit North America, and were found by Dampier in Shark's Bay, on the coast of New Holland. See Plate CCCCXXXV.

The recurvirostra, or scolopax alba, is about 14 inches and a quarter long, its colour white, the inferior coverts of its wings dusky, its bill orange, its legs brown. Edwards remarks, that the bill of this bird is bent upwards, as in the avoset; its bill black at the tip, and orange the rest of its length; all the plumage is white, except

Rectory
||
Recurvirostra.

Recusants,
Red Sea.

except a tint of yellowish on the great quills of the wing and of the tail. Edwards supposes, that the whiteness is produced by the cold climate of Hudson's Bay, from which he received it, and that they resume their brown feathers during the summer. It appears that several species of this bird have spread further into America, and have even reached the southern provinces: for Sloane found our third species in Jamaica; and Fernandez seems to indicate two of them in New Spain, by the names *chiquatototl* and *elotototl*; the former being like our woodcock, and the latter lodging under the stalks of maize.

A bird of this kind, Mr Latham says, was sent from Hudson's Bay, and from the figure, has every appearance of an avoet: however, in Edwards's plate, the toes appear cloven to the bottom; a circumstance seeming to overturn the supposition, and only to be authenticated when other specimens shall have come under the eye of the well-informed naturalist.

RECUSANTS, such persons as acknowledge the pope to be the supreme head of the church, and refuse to acknowledge the king's supremacy; who are hence called *Popish recusants*. The penal laws against Papists are now abolished in Britain and in Ireland; and in all probability they will quickly be allowed the amplest privileges.

RED, one of the colours called *simple* or *primary*: being one of the shades into which the light naturally divides itself when refracted through a prism. See CHROMATICS.

RED, in dyeing, see that article.—Some reckon six kinds or casts of red, viz. scarlet-red, crimson-red, madder-red, half-grain red, lively orange-red, and scarlet of cochineal: but it is easy to see that there can be but one proper species of red; namely, the reflection of the light exactly in such a manner as it is refracted by the prism; all other shades being adulterations of that pure colour, with yellow, brown, &c.

RED, in heraldry. See GULES.

RED-Bird. See MUSCICAPA, n° 7.

RED-Breast, in ornithology. See MOTACILLA.

RED-Book of the exchequer, an ancient record or manuscript volume, in the keeping of the king's remembrancer, containing divers miscellany treatises relating to the times before the conquest.

RED-Lead. See CHEMISTRY, n° 1213.

RED Precipitate of Mercury. See CHEMISTRY, n° 764.

RED-Russia, or *Little Russia*, a province of Poland, bounded on the west by Upper Poland, on the north by Lithuania, on the east by the country of the Little Tartars, and on the south by Moldavia, Transylvania, and a part of Hungary. It comprehends Russia properly so called, Volhinia, and Podolia. It is about 650 miles in length, and from 150 to 250 in breadth. It consists chiefly of large fields, but little cultivated on account of the frequent inroads of the Tartars, and because there is no water-carriage. It had the name of *Red Russia*, from the colour of the hair of its inhabitants. Russia, properly so called, comprehends the three palatinates of Leopold or Lemburg, Belisko, and Chelm.

RED-Sea, or *Arabic Gulph*, so much celebrated in sacred history, separates Arabia from Upper Ethiopia and part of Egypt. This sea is 350 leagues in length

and 40 in breadth. As no river falls into it of sufficient force to counteract the influence of the tide, it is more affected by the motions of the great ocean than any of the inland seas nearly in the same latitude. It is not much exposed to tempests: the winds usually blow from north to south, and being periodical, like the monsoons of India, invariably determine the season of sailing into or out of this sea. It is divided into two gulphs; that to the east was called the *Ælantic gulph*, from the city *Ælana* at the north end of it; and that to the west the *Heroopolitic*, from the city of Heroopolis; the former of which belongs to Arabia, and the latter to Egypt.

Mr Bruce has made many observations on this sea, which are worthy of notice.—With regard to the name, he says it was certainly derived from Edom or Esau the son of Jacob; though in another place he says, he wonders that writers have not rather supposed it to have got the epithet of *Red*, from the colour of the sand on its coasts, than for other reasons they have alleged. With regard to any redness in the water itself, or in the bottom, which some have asserted, our traveller assures us that there is no such thing. It is more difficult to assign a reason for the Hebrew name of it, which signifies the *Sea of Weeds*; as he never saw a weed throughout the whole extent of it. "Indeed, (says he) upon the slightest consideration, it will occur to any one, that a narrow gulph, under the immediate influence of the monsoons, blowing from contrary points six months each year, would have too much agitation to produce such vegetables, seldom found but in stagnant waters, and seldom, if ever, found in salt ones. My opinion then is, that it is from the large trees or plants of white coral, spread everywhere over the bottom of the Red Sea, perfectly in imitation of plants on land, that the sea has obtained this name.—I saw one of these, which, from a root nearly central, threw out ramifications of an almost circular form, measuring 26 feet every way."

Our author has also made many useful observations on the navigation of this sea. "All the western shore (he says) is bold, and has more depth of water than the east; but on this side there is neither anchoring ground nor shoals. It is rocky, with a considerable depth of water everywhere; and there are a number of sunken rocks, which, though not visible, are sufficiently near the surface to destroy a large ship." The cause of this, in Mr Bruce's opinion, is, that the mountains on the side of Abyssinia and Egypt are all of hard stone, porphyry, many different kinds of marble, granite, alabaster, and basalt. These being all composed of solid materials, therefore, can part with very little dust or sand, which might otherwise be blown from them into the sea. On the opposite coast, viz. that of Hejaz and Tahamah, on the Arabian side, the whole consists of moving sands; a large quantity of which is blown from the south-east by the dry winter monsoons; which being lodged among the rocks on that side, and confined there by the north-east or summer monsoon, which is in a contrary direction, hinders them from coming over to the Egyptian side. Hence the western coast is full of sunken rocks for want of sand to cover them, with which they would otherwise become islands. They are naked and bare all round, with sharp points like spears; while, on the east-side, every rock becomes

Red Sea.

Red Sea. an island, and every two or three islands become an harbour. On the ends of the principal of these harbours the people have piled up great heaps of stones to serve as signals: "and it is in these (says Mr Bruce) that the large vessels from Cairo to Jidda, equal in size to our large 74 gun-ships (but from the cisterns of mason-work built within for holding water, I suppose double their weight), after navigating their portion of the channel in the day-time, come safely and quietly to at four o'clock in the afternoon; and in these little harbours pass the night, to sail into the channel again next morning."

* The western channel of the Red Sea was chosen, in the days of the Ptolemies, for the track of the Indian and African. These monarchs erected a great number of cities all along the western coast; and notwithstanding the dangers of the navigation, we do not hear that it was ever abandoned on account of them.

From the observations made by our author on the navigation of the Red Sea, he undertakes to point out a safe passage for large ships to the gulph of Suez, so that they may be able to judge of the propriety of their own course themselves, without trusting implicitly to the pilots they meet with, who are often very ignorant of their profession. This sea, according to Mr Bruce, may be divided into four parts, of which the channel occupies two, till near the latitude of 26° , or that of Coffair. On the west it is deep water, with many rocks; and on the east it is full of islands, as has been already mentioned. Between these islands there are channels and harbours of deep water, where ships may be protected in any wind; but a pilot is necessary in sailing among these from Mocha to Suez, and the voyage besides can be continued only during part of the day. Ships bound to Suez without the consent of the sheriffs of Mecca, that is, without any intention of selling their cargo at Jidda, or paying custom there, ought to take in their fresh water at Mocha; or if there be any reason against this, a few hours will carry them to Azab or Saba on the Abyssinian coast, where they may be plentifully supplied: but it must be remembered, "that the people here are *Galla*, the most treacherous and villanous wretches on earth." Here not only water may be procured, but plenty of sheep, goats, with some myrrh, and incense in the proper season.—Great caution, however, must be used in dealing with the people, as even those of Mocha, who are absolutely necessary to them in their commercial dealings, cannot trust them without surety or hostages. Not many years ago, the surgeon and mate of the *Elgin East India* man, with several other sailors, were murdered by these savages as they went ashore to purchase myrrh, though they had a letter of safe conduct from the shekh.

To such as do not want to be known, our author recommends a low black island on the coast of Arabia, named *Camaran*, in latitude $15^{\circ} 30'$. It is distinguished by a white house or fortress on the west end of it; where water is to be had in still greater plenty than at Azab; but no provisions, or such only as are very bad, can be procured. If it is necessary not to be seen at all on the coast, the island of *Foofit* is recommended by our author as having excellent water, with a faint or monk, whose office is to keep the wells clean. This is one of the chain of islands which stretches almost across the gulph from *Loheia* to *Mafuah*, and from ac-

tual observation by Mr Bruce, is found to be situated **Red Sea.** in N. Lat. $15^{\circ} 59' 43''$. E. Long. $42^{\circ} 47'$. From this to Yambo there is a safe watering-place; and there is an absolute necessity for having a pilot before you come to Ras Mahomet; because, over the Ælanitic gulph, the mountains of Aucha, and the Cape itself, there is often a thick haze which lasts for many days together, and a number of ships are lost by mistaking the eastern bay or Ælanitic gulph for the entrance of the gulph of Suez; the former has a ridge of rocks nearly across it. After reaching Sheduan, a large island, about three leagues farther in a north by west direction, there is a bare rock distinguished by no particular name; but so situated that ships ought not to come within three leagues of it. This rock is to be left to the westward at the distance just mentioned; after passing which you meet with shoals forming a pretty broad channel, with soundings from 15 to 30 fathoms; and again, on standing directly for Tor, there are two other oval sands with sunk rocks in the channel, between which you are to steer. Tor may be known at a distance by two hills that stand near the water side; which, in clear weather, may be seen six leagues off. Just to the south-east of these is the town and harbour, where there are some palm-trees about the houses, the more remarkable, as being the first that are seen on the coast. The soundings in the way to Tor harbour are clean and regular; "and, by giving the beacon a small birth on the larboard hand, you may haul in a little to the northward, and anchor in five or six fathom." In spring-tides, it is high water at Tor nearly about 12 o'clock: in the middle of the gulph there is no perceptible tide, but at the sides it runs at the rate of more than two knots in the hour. Tor itself is but a small village, with a convent of monks belonging to those of Mount Sinai. It was taken by Don John de Castro, and fortified soon after its discovery by the Portuguese; but has never since been a place of any consideration; serving now only for a watering place to the ships trading to or from Suez.—From this place there is a distinct view of mounts Horeb and Sinai, which appear above and behind the others, with their tops frequently covered with snow in the winter.

Mr Bruce next proceeds to consider some questions which may be reckoned matters of curiosity rather than any thing else. One of these is concerning the level of the water of this sea itself, which has been supposed several feet above that of the Mediterranean. "To this (says our author) I answer, that the fact has been supposed to be so by antiquity, and alleged as a reason why Ptolemy's canal was made from the bottom of the Heroopolitic gulph rather than brought due north across the isthmus of Suez; in which last case it was feared it would submerge a great part of Asia Minor. But who has ever attempted to verify this by experiment? or who is capable of settling the difference of levels, amounting, as supposed, to some feet and inches, between two points 120 miles distant from each other, over a desert that has no settled surface, but is changing its height every day? Besides, since all seas are in fact but one, what is it that hinders the Indian ocean to flow to its level? What is it that keeps the Indian ocean up? Till this last branch of the question is resolved, I shall take it for granted that no such difference

Red Sea
||
Reddle.

of level exists, whatever Ptolemy's engineers might have pretended to him; because, to suppose it fact, is to suppose the violation of one very material law of nature."

The next thing considered by our author is the passage of the Israelites through the Red Sea. At the place where he supposes the passage to have been, the sea is not quite four leagues broad, so that it might easily have been crossed in one night without any miracle. There is about 14 fathom water in the channel, and 9 at the sides, with good anchorage everywhere; the farthest side is a low sandy coast, and a very easy landing place. "The draught of the bottom of the gulph (says he) given by Dr Pococke, is very erroneous in every part of it. It was proposed to Mr Niebuhr, when in Egypt, to inquire upon the spot, whether there were not some ridges of rocks where the water was shallow, so that an army at particular times might pass over? Secondly, whether the Etesian winds, which blow strongly all summer from the north-west, could not blow so violently against the sea, as to keep it back on a heap, so that the Israelites might have passed without a miracle? And a copy of these queries was left for me to join my inquiries likewise. But I must confess, however learned the gentlemen were who proposed these doubts, I did not think they merited any attention to solve them. If the Etesian winds, blowing from the north-west in summer, could heap up the sea as a wall on the right or to the south, of 50 feet high, still the difficulty would remain of building the wall on the left hand or to the north. Besides, water standing in that position for a day, must have lost the nature of a fluid. Whence came that cohesion of particles that hindered that wall to escape at the sides? This is as great a miracle as that of Moses. If the Etesian winds had done this once, they must have repeated it many a time before and since, from the same causes. Yet Diodorus Siculus says, the Troglodytes, the indigenous inhabitants of that very spot, had a tradition from father to son, from their very earliest and remotest ages, that once this division of the sea did happen there; and that, after leaving the bottom some time dry, the sea again came back and covered it with great fury. The words of this author are of the most remarkable kind. We cannot think this heathen is writing in favour of revelation. He knew not Moses, nor says a word about Pharaoh and his host; but records the miracle of the division of the sea in words nearly as strong as those of Moses, from the mouths of unbiassed undesigning pagans."

Red-Shank, in ornithology. See SCOLOPAX.

Red-Start, a species of MOTACILLA.

Red-Wing. See TURDUS.

REDANS, in field fortification. See the article REDENS.

REDDENDUM, in law, is used substantively for the clause in a lease wherein the rent is reserved to the lessor. The proper place for it is next after the limitation of estate.

REDDITIO, was the third part of the sacrifice of the heathens, and consisted of the solemn act of putting in again the entrails of the victims, after they had been religiously inspected. See SACRIFICE.

REDDLE, a soft, heavy, red marle, of great use in colouring; and being washed and freed from sand,

is often sold by our druggists under the name of *bole armenic*. Redemp- tion ||

REDEMPTION, in law, a faculty or right of re-Reduction, ||
entering upon lands, &c. that have been sold and assigned, upon reimbursing the purchase-money with legal costs.

REDEMPTION, in theology, denotes the recovery of mankind from sin and death, by the obedience and sacrifice of Christ, who on this account is called the *Redeemer of the world*. See THEOLOGY.

REDENS, REDANS, or *Redant*, in fortification, a kind of work indented in form of the teeth of a saw, with salient and re-entering angles; to the end that one part may flank or defend another. It is likewise called *saw-work* and *indented work*. The lines or faces in this flank one another.

Redens are used in fortifying walls, where it is not necessary to be at the expence of building bastions; as when they stand on the side of a river running through a garrison town, a marsh, the sea, &c. But the fault of such fortification is, that the besiegers from one battery may ruin both the sides of the tenaille or front of a place, and make an assault without fear of being enfiladed, since the defences are mined. The parapet of the corridor is likewise often redented or carried on by the way of redens. The redens was used before bastions were invented, and some people think them preferable.

REDI (Francis), an Italian physician and polite scholar, was born at Arezzo in Tuscany in 1626. His ingenuity and learning recommended him to the office of first physician to Ferdinand II. duke of Tuscany; and he contributed not a little toward the compiling of the Dictionary of La Crusca. He wrote upon vipers, upon the generation of insects, and composed a good deal of poetry. All his writings are in Italian; and his language is so fine and pure, that the authors of the Dictionary of La Crusca have often cited them as standards of perfection. He died in 1697.

REDOUBT, in fortification, a small square fort, without any defence but in front; used in trenches, lines of circumvallation, contravallation, and approach; as also for the lodgings of corps-de-gard, and to defend passages.

REDUCTION, in the schools, a manner of bringing a term or proposition, which was before opposite to some other, to be equivalent to it.

REDUCTION, in arithmetic, that rule whereby numbers of different denominations are brought into one denomination. See ARITHMETIC.

REDUCTION of Equations, in algebra, is the clearing them from all superfluous quantities, bringing them to their lowest terms, and separating the known from the unknown, till at length only the unknown quantity is found on one side, and known ones on the other. The reduction of an equation is the last part of the resolution of the problem. See ALGEBRA.

REDUCTION of a figure, design, or draught, is the making a copy thereof, either larger or smaller than the original; still preserving the form and proportion. The great use of the proportional compasses is the reduction of figures, &c. whence they are called *compasses of reduction*. See the article COMPASS.

There are various methods of reducing figures, &c.

Reduction the most easy is by means of the pentagraph, or parallelogram; but this hath its defects. See the article **PEN-TAGRAPH**.

Redundant The best and most usual methods of reduction are as follow: 1. To reduce a figure, as ABCDE (n° 1.), into a less compass. About the middle of the figure, as *z*, pitch on a point, and from this point draw lines to its several angles A, B, C, &c. then drawing the line *ab* parallel to AB, *bc* parallel to BC, &c. you will have the figure *abcde* similar to ABCDE.

Plate
CCUCXXXV.

If the figure *abcde* had been required to be enlarged, there needed nothing but to produce the lines from the point beyond the angles, as *z* D, *z* C, &c. and to draw lines, viz. DC, CB, &c. parallel to the sides *dc*, *cb*, &c.

2. To reduce a figure by the angle of proportion, suppose the figure ABCDE (n° 2.) required to be diminished in the proportion of the line AB to *ab* (n° 3.), draw the indefinite line GH (n° 4.), and from G to H set off the line AB. On G describe the arch HI. Set off the line *ab* as a chord on HI, and draw GL. Then with the angle IGH, you have all the measures of the figure to be drawn. Thus to lay down the point *c*, take the interval BC, and upon the point G describe the arch KL. Also on the point G describe MN; and upon A, with the distance MN, describe an arch cutting the preceding one in *c*, which will determine the side *bc*. And after the same manner are the other sides and angles to be described. The same process will also serve to enlarge the figure.

3. To reduce a figure by a scale. Measure all the sides of the figure, as ABCDE (n° 2.) by a scale, and lay down the same measures respectively from a smaller scale in the proportion required.

4. To reduce a map, design, or figure, by squares. Divide the original into little squares, and divide a fresh paper of the dimensions required into the same number of squares, which are to be larger or less than the former, as the map is to be enlarged or diminished. This done in every square of the second figure, draw what you find in its correspondent one in the first.

REDUCTION, in metallurgy, is the bringing back metalline substances which have been changed into scorize or ashes, or otherwise divested of their metallic form, into their natural and original state of metals again. See **METALLURGY**, *passim*; and **CHEMISTRY**, n° 140. and 320.

REDUCTION, in surgery, denotes an operation whereby a dislocated, luxated; or fractured bone, is restored to its former state or place.

REDUNDANCY, a fault in discourse, consisting in the use of a superfluity of words. Words perfectly synonymous are redundant, and ought to be retrenched.

REDUNDANT, in music. What the French call *une accord superflue*, which we have translated a *redundant chord* in the article **MUSIC** (from D'Alembert); has by others been rendered a *chord extremely sharp*, as in the translation of Rameau's Principles of Composition. Their nature will be best understood by a few examples, and an account of the number of tones, semitones, or lesser intervals, contained in each.

The *second redundant* is composed of a major tone, and a minor semitone; as from *fa* to *sol* sharp. Its proportion is as 64 to 75.

The *third redundant* consists of two tones and a semitone, as *fa*, *la*, sharp. Its proportion is as 96 to 125.

The *fourth redundant* is the same with the tritone.

From these examples compared with the same intervals in their natural state, the reader may form a general idea of what is meant by *redundant*.

REE, REIS, or *Res*, a little Portuguese coin. See **MONEY-Table**.

REED, in botany. See **ARUNDO** and **BAMBOO**.

There are two sorts of reeds, says Hasselquist, growing near the Nile. One of them has scarce any branches; but is furnished with numerous leaves, which are narrow, smooth, channelled on the upper surface; and the plant is about 11 feet high. The Egyptians make ropes of the leaves. They lay them in water like hemp, and then make them into good strong cables. These, with the bark of the date-tree, form almost the only cable used in the Nile. The other sort is of great consequence. It is a small reed, about two or three feet high, full branched, with short, sharp, lancet-shaped leaves. The roots, which are as thick as the stem, creep and mat themselves together to a considerable distance. This plant seems useless in common life: but to it, continues the learned author, is the very soil of Egypt owing: for the matted roots have stopped the earth which floated in the waters, and thus formed, out of the sea, a country that is habitable.

Fire-REEDS. See **FIRE-SHIP**.

REED, a term in the west of England for the straw used by thatchers, which is wheat straw finely combed, consisting of stiff, unbruised, and unbroken stalks of great length, carefully separated from the straw used for fodder by the thresher, and bound in sheaves or nitches, each of which weighs 28 lb. and are sold from 21 s. to 31 s. per hundred nitches, according to the season. This is a great improvement in the art of thatching, as it gives a finish to the work which cannot be attained by straw, rough and tumbled together, without any separation of the long and short: it also is a readier mode of working.

REEF, a term in navigation. When there is a great gale of wind, they commonly roll up part of the sail below, that by this means it may become the narrower, and not draw so much wind; which contracting or taking up the sail they call a *reef*, or *reefing the sail*: so also when a *top-mast* is sprung, as they call it, that is, when it is cracked; or almost broken in the cap, they cut off the lower piece that was near broken off, and setting the other part, now much shorter, in the step again, they call it a *reefed top-mast*.

REEL, in the manufactories, a machine serving for the office of reeling. There are various kinds of reels; some very simple, others very complex.

REELING, in the manufactories, the winding of silk, cotton, or the like, into a skein, or upon a button, to prevent its entangling. It is also used for the charging or discharging of bobbins, or quills, to use them in the manufacture of different stuffs, as thread, silk, cotton, &c. Reeling is performed in different ways, and on different engines.

REEVING, in the sea-language, the putting a rope through a block: hence to pull a rope out of a block is called *unreeving*.

RE-EXCHANGE, in commerce, a second payment of the price of exchange, or rather the price of

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Re-Ex-
change.

Refining. a new exchange due upon a bill of exchange that comes to be protested, and to be refunded the bearer by the drawer or indorser.

REFECTION, among ecclesiastics, a spare meal or repast, just sufficing for the support of life: hence the hall in convents, and other communities, where the monks, nuns, &c. take their refectons or meals in common, is called the *refectory*.

REFERENCE, in writing, &c. a mark relative to another similar one in the margin, or at the bottom of the page, where something omitted in the text is added, and which is to be inserted either in reading or copying.

REFINING, in general, is the art of purifying a thing; including not only the essaying or refining of metals, but likewise the depuration or clarification of liquors. See METALLURGY, Part II. CLARIFICATION; and PHARMACY.

Gold and silver may be refined by several methods, which are all founded on the essential properties of these metals, and acquire different names according to their kinds. Thus, for instance, gold having the property which no other metal, not even silver, has of resisting the action of sulphur, of antimony, of nitrous acid, of marine acid; may be purified by these agents from all other metallic substances, and consequently may be refined. These operations are distinguished by proper names, as *purification of gold by antimony, parting, concentrated parting, dry parting* &c. In a similar manner, as silver has the property, which the imperfect metals have not, of resisting the action of nitre, it may be refined by this salt: but the term *refining* is chiefly applied to the purification of gold and silver by lead in the cupel.

This is performed by the destruction, vitrification, and scorification, of all the extraneous and destructible metallic substances with which they are allayed.

As none but the perfect metals can resist the combined action of air and fire, without losing their inflammable principle, and being changed into earthy or vitreous matters, incapable of remaining any longer united with substances in a metallic state, there is then a possibility of purifying gold and silver from all alloy of imperfect metals merely by the action of fire and air; only by keeping them fused till all the alloy be destroyed: but this purification would be very expensive, from the great consumption of fuel, and would be exceedingly tedious. Silver allayed with copper has been exposed longer than 60 hours to a glass-house fire without being perfectly refined: the reason of which is, that when a small quantity only of imperfect metal remains united with gold or silver, it is covered and protected from the action of the air, which is necessary for the combustion of the imperfect metals, as of all combustible matters.

This refining of gold and silver merely by the action of fire, which was the only method anciently known, was very long, difficult, expensive, and imperfect; but a much shorter and more advantageous method has been discovered. This method consists in adding to the allayed gold and silver a certain quantity of lead, and in exposing afterwards this mixture to the action of the fire. Lead is one of the metals which loses most quickly and easily a sufficient quantity of its inflammable principle to cease to be in a metallic state; but, at the

same time, this metal has the remarkable property of retaining, notwithstanding the action of the fire, enough of this same inflammable principle to be very easily melted into a vitrified and powerfully vitrifying matter, called *litharge*.

The lead then which is to be added to the gold and silver to be refined, or which happens naturally to be mixed with these metals, produces in their refining the following advantages: 1. By increasing the proportion of imperfect metals, it prevents them from being so well covered and protected by the perfect metals.— 2. By uniting with these imperfect metals, it communicates to them a property it has of losing very easily a great part of its inflammable principle. 3. By its vitrifying and fusing property which it exercises with all its force upon the calcined and naturally refractory parts of the other metals, it facilitates and accelerates the fusion, the scorification, and the separation of these metals. These are the advantages procured by lead in the refining of gold and silver.

The lead, which in this operation is scorified, and scorifies along with it the imperfect metals, separates from the metallic mass, with which it is then incapable of remaining united. It floats upon the surface of the melted mass; because, by losing part of its phlogiston, it loses also part of its specific gravity, and lastly it vitrifies.

These vitrified and melted matters accumulating more and more upon the surface of the metal while the operation advances, would protect this surface from the contact of air which is so absolutely necessary for the scorification of the rest, and would thus stop the progress of the operation, which could never be finished, if a method had not been contrived for their removal. This removal of the vitrified matter is procured either by the nature of the vessel in which the melted matter is contained, and which being porous, absorbs and imbibes the scorified matter as fast as it is formed, or by a channel cut in the edge of the vessel through which the matter flows out.

The vessel in which the refining is performed is flat and shallow, that the matter which it contains may present to the air the greatest surface possible. This form resembles that of a cup, and hence it has been called *cupel*. The furnace ought to be vaulted, that the heat may be applied upon the surface of the metal during the whole time of the operation. Upon this surface a crust of dark-coloured pellicle is continually forming. In the instant when all the imperfect metal is destroyed, and consequently the scorification ceases, the surface of the perfect metals is seen, and appears clean and brilliant. This forms a kind of fulguration or coruscation. By this mark the metal is known to be refined. If the operation be so conducted that the metal sustains only the precise degree of heat necessary to keep it fused before it be perfectly refined, we may observe that it fixes or becomes solid all at once in the very instant of the coruscation; because a greater heat is required to keep silver or gold in fusion when they are pure than when allayed with lead.

The operation of refining may be performed in small or in large quantities, upon the same principles, but only with some differences in the management. As the refining of small quantities of perfect metals is performed in the same manner as these metals are essayed, the

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essay being only a very accurate refining, we refer to the article *Essay of the Value of Silver*.

Large quantities of silver are thus purified, after the operations by which that metal is obtained from its ores. This silver, being always much allayed, is to be mixed with a sufficient quantity of lead to complete its purification, unless lead has been added in its first fusion from the ore, or unless it has been extracted from an ore which also contains lead; in which latter case, it is allayed naturally with a sufficient quantity, or more than sufficient, for the refining of it.

REFLECTION, the return or progressive motion of a moving body, occasioned by some obstacle which hindered it from pursuing its former direction.

Circular Instrument of REFLECTION, an instrument for measuring angles to a very great degree of accuracy. It was invented by the celebrated astronomer Mr Tobias Mayer of Gottingen, principally with a view to do away the errors of the divisions of the limb; and has since been much improved by the Chevalier de Borda, and M. J. H. de Magellan. This instrument is particularly applicable to the measuring of the distances of the heavenly bodies, and was used by the French in their part of the operation for determining the difference of meridians of Paris and Greenwich. For the description, rectification, and use of this instrument, see the article NAVIGATION, and Mackay on the Longitude, vol. i. p. 44.

REFLECTION of the Rays of Light, in catoptrics, is their return, after approaching so near the surface of bodies as to be thereby repelled or driven backwards. For the causes of reflection, see OPTICS, *Index at Rays of Light*, and *Reflection of Light*, &c. For the application of the doctrine of reflection to mirrors, see OPTICS, p. 347—349. See also MIRROR, BURNING-Glass, and Glass-GRINDING; and for the coating or polishing of mirrors, see the article FOLIATING of Looking-glasses, &c. See also TELESCOPE.

REFLECTION is also used, figuratively, for an operation of the mind, whereby it turns its view backwards as it were upon itself, and makes itself and its own operations the object of its disquisition; and by contemplating the manner, order, and laws, which it observes in perceiving ideas, comparing them together, reasoning, &c. it frames new ideas of the relations discovered therein. See METAPHYSICS.

REFLEX, in painting, means those places in a picture which are supposed to be illuminated by light reflected from some other body in the same piece. See PAINTING, Part I. sect. 2. and 5.

REFLUX, the backward course of water, has the same meaning as the ebbing of the sea, and is opposed to flood, flux, or the flowing of the sea. See TIDES.

REFORM means a change from worse to better, a re-establishment or revival of former neglected discipline, or a correction of abuses therein. The term is much used in a monastic sense for the reducing an order or congregation of religious to the ancient severity of the rule from which it had gradually swerved, or even for improving on the ancient rule and institution itself, and voluntarily making it more severe. In this sense the order of St Bernard is said to be only a reform of that of St Benedict. In this country it is applied both to politics and religion, and may innocently be applied to any endeavours to change an establishment from worse

to better. But it appears at present to have been chiefly made a pretence for designs which could not fairly or safely be avowed.

A reform in religion and in parliament (see PARLIAMENT) has, we know, been most loudly called for by men whose religious notions are immensely different from what has been generally reckoned Christianity, and whose designs, as has been legally proved, went to the overthrow of all civil order. For insidious purposes like these, the word reform is a good cloak, especially if any thing can be fixed upon, either in the religion or government of the state, which, with the help of exaggeration and distortion, can be represented to the weak and unthinking as extremely defective and erroneous.

The general error of these men seems to be, that having picked up a set of speculative notions which flatter their own pride and the pride of those who listen to them, they will allow nothing to the arguments of their opponents or the experience of mankind. They think so often and so much upon their ideal reforms, that while they imagine their notions are liberal and extensive, they become contracted beyond imagination; while their judgments, of course, are warped with the most inveterate prejudices (see PREJUDICE.) They see, or think they see, the propriety of their schemes; but they seldom, perhaps never, reflect, that that may be true in speculation or in theory which cannot possibly be reduced to practice. They will not take the world as it is, and allow it to profit by the wisdom and experience of ages; but they will reform it according to those ideas of right which they have learned from their own speculations and airy theories; seldom considering what may be done, they are determined to do what they think ought to be done. Liberty of conscience, and liberty of action, have been claimed by them as the unalienable rights of man; and so we ourselves are disposed to think them: nor have we heard that in this country they have been denied to any man, or set of men, so far as has been thought consistent with the safety of the state, and that of the other individuals who compose it. At the same time, the very same men hesitate not to blame, with acrimony the most violent, and to the utmost of their power to restrain, the actions and opinions of those who with equal conviction, often on better grounds, and generally with more modesty, differ from them.

Amidst that excessive ardour, too, with which they propagate their opinions, they forget the extreme danger of withdrawing the attention of that part of the community, who must earn their bread by the sweat of their brow, from their proper occupations, to the tempestuous sea of political debate, for which their education and mode of life cannot possibly have qualified them. It requires but very little penetration, however, to be able to see, that it can be of no real service either to the individuals themselves, or to the community at large, in whatever light we look upon it. Indeed, to make those the judges of the law, and the reformers of the legislature, who have all their lives been employed in manual labour, is the extreme of folly; and yet it is what some men of considerable abilities, and from whom we had reason to expect better things, have more than once attempted. The effect of such a mode of seduction (and it deserves no better name), when it shall become general, instead of serving the purposes of a real reform, must be to annihilate all civil order. Dissatisfaction

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tisfaction is the most powerful check to honest industry; and dissatisfaction and idleness must be the effect of the wanderings of such men in the labyrinths of politics; which, for uncultivated minds especially, paves the way for every species of vice, and gradually ripens them for any wickedness, however atrocious. For the truth of these remarks, we appeal to the history of mankind from the Creation to the present time: and we would seriously request the *sober friends of reform*, and many such, we doubt not, there are, to reflect, that in the present day we have more to fear from licentiousness than from despotism; from reform carried to an extreme than from the pretended attempts either of kings or ministers to annihilate our real liberty (see *REVOLUTION*).

It may also be worth their while to consider, that times of public danger are not generally the best adapted to attempt changes of government; because what might satisfy one party would probably be thought too little by another, and divisions at such a period are most dangerous. When, therefore, attempts are made for reform which appear to be inconsistent with the safety of the state, restrictions must be used, which may by speculative men be thought severe and unnecessary, but of which they themselves are the causes. These restrictions too will be patiently submitted to by the wiser part of the community, when in more peaceable times they would neither have been thought of nor allowed.

Speculative reasoners may speak as much as they will of enlightening the minds of men, and of reforming government by the dictates of a refined and dispassionate philosophy; but when they come to apply their notions to practice, they will either find their representations little better than empty sounds, and therefore ineffectual; or, as is more generally found to be the case, those schemes which in theory appeared to be perfect, will in practice, when combined with the malignant and ambitious passions of men, lead to ruin and disorder. The first institution of government, except among the Jews, was unquestionably the effect of passion and interest combined; and this passion and this interest, restrained within due bounds, is productive of much happiness. That government, we believe, too, will be best supported, and most productive of happiness, in which the mutual passions and interests of the individuals who compose it are so equally poised as to support one another, and to promote each the ends and success of the other: and this by the ablest reasoners and the best men has been thought to be the case with the British constitution. If the modern favourers of reform should think this an unstable support, if they will consider the world as it ever has been, and as it is, they will find it the only one we have, except religion; and they will thence be inclined to make the best of it. If, after all, however, they should be disposed to doubt the position, we have only further to request them, with the sincerity of men and of Christians, to consult their own breasts, and seriously to consider the probable motives of those who act with them. They will then perhaps see, and they surely ought to acknowledge, that few men have acted more according to the impulse of passion, interest, and ambition, than those who have for some time past founded the toczin of reform.

REFORMATION, in general, an act of reforming or correcting an error or abuse in religion, disci-

pline, or the like. By way of eminence the word is used for that great alteration and reformation in the corrupted system of Christianity, begun by Luther in the year 1517.

Under the article *HISTORY* (sect. ii.), the various corruptions in religion, the oppressions and usurpations of the clergy, and the extreme insolence of the popes, have been so fully treated of, that any further detail here is unnecessary. It is sufficient to observe, that, before the period of the Reformation, the Pope had in the most audacious manner declared himself the sovereign of the whole world. All the parts of it which were inhabited by those who were not Christians, he accounted to be inhabited by *no-body*; and if Christians took it into their heads to possess any of those countries, he gave them full liberty to make war upon the inhabitants without any provocation, and to treat them with no more humanity than they would have treated wild beasts. The countries, if conquered, were to be parcelled out according to the pope's pleasure; and dreadful was the situation of that prince who refused to obey the will of the holy pontiff, of which many instances will occur to the reader in the various historical articles of this work. In consequence of this extraordinary authority which the pope had assumed, he at last granted to the king of Portugal all the countries to the eastward of Cape Non in Africa, and to the king of Spain all the countries to the westward of it. In this, according to the opinions of some, was completed in his person the character of *Antichrist sitting in the temple of God, and shewing himself as God* *. He had long before, ² They say they, assumed the supremacy belonging to the Deity himself in spiritual matters; and now he assumed the same supremacy in worldly matters also, giving the extreme regions of the earth to whom he pleased. The Reformation, therefore, they consider as the immediate effect of divine power taking vengeance on this and all other deviations from the system of truth; while others consider it merely as an effect of natural causes, and which might have been foreseen and prevented, without abridging the papal power in any considerable degree.

Be this as it will, however, the above-mentioned partition was the last piece of insolence which the pope ever had, or in all probability ever will have, in his power to exercise, in the way of parcelling out the globe to his adherents. Every thing was quiet, every heretic exterminated, and the whole Christian world supinely acquiesced in the enormous absurdities which were inculcated upon them; when, in 1517, the empire of superstition began to decline, and has continued to do so ever since. The person who made the first attack on the extravagant superstitions then prevailing was Martin Luther; the occasion of which is fully related under the article *LUTHER*. By some it is pretended, that the only motive which Luther had in beginning the Reformation was his enmity to the Dominican friars, who had excluded his order (the Augustines) from all share in the gainful traffic of indulgences. But this does not seem at all probable, if we consider that such a motive would not naturally have led him to deny the virtue of indulgences, as such conduct could not but exclude him for ever from any chance of a share in the traffic, which otherwise perhaps he might have obtained. Besides, the extreme contrariety of this traffic to the common principles of reason and honesty was so great, that we

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2 Reforma-
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cannot wonder at finding *one* man in the world who had sense enough to discern it, and virtue enough to oppose such an infamous practice. In all probability, however, the insignificance of the first reformer was the reason why he was not persecuted and exterminated at his first beginning, as others had been before him. Another reason probably might be, that he did not at once attack the whole errors of Popery, but brought about his reformation gradually, probably as it occurred to himself, and as we have related in the account of his life.

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In Switzerland
land by
Zuinglius.

The Reformation began in the city of Wittemberg in Saxony, but was not long confined either to that city or province. In 1520 the Franciscan friars, who had the care of promulgating indulgences in Switzerland, were opposed by Zuinglius, a man not inferior in understanding and knowledge to Luther himself. He proceeded with the greatest vigour, even at the very beginning, to overturn the whole fabric of Popery; but his opinions were declared erroneous by the universities of Cologne and Louvain. Notwithstanding this, the magistrates of Zurich approved of his proceedings; and that whole canton, together with those of Bern, Basil, and Chaffausen, embraced his opinions.

In Germany, Luther continued to make great advances, without being in the least intimidated by the ecclesiastical censures which were thundered against him from all quarters, he being continually protected by the German princes either from religious or political motives, so that his adversaries could not accomplish his destruction as they had done that of others. The princes, who were upon bad terms with the court of Rome, took advantage of the success of the new doctrines; and in their own dominions easily overturned a church which had lost all the respect and veneration of the inferior ranks. The court of Rome had disobliterated some of the smaller princes in the north of Germany, whom the Pope probably thought too insignificant to be worth the managing, and they universally established the Reformation in their own dominions. Melancthon, Carlostadius, and other men of eminence, also greatly forwarded the work of Luther; and in all probability the Popish hierarchy would have soon come to an end, in the northern parts of Europe at least, had not the emperor Charles V. given a severe check to the progress of reformation in Germany. In order to follow out the schemes dictated by his ambition, he thought it necessary to ingratiate himself with the pope; and the most effectual method of doing this was by destroying Luther. The Pope's legates insisted that Luther ought to be condemned by the diet of Worms without either trial or hearing; as being a most notorious, avowed, and incorrigible heretic. However, this appeared unjust to the members of the diet, and he was summoned to appear; which he accordingly did without hesitation*. There is not the least doubt that his appearance there had been his last in this world, had not the astonishing respect that was paid him, and the crowds who came daily to see him, deterred his judges from delivering the church from the author of such a pestilent heresy; which they were strongly solicited by the pope's party to do. He was therefore permitted to depart with a safe conduct for a certain time; after which he was in the state of a proscribed criminal, to whom it was unlawful to perform any of the offices of humanity.

* See Luther.

During the confinement of Luther in a castle near

Warburg, the Reformation advanced rapidly; almost every city in Saxony embracing the Lutheran opinions. At this time an alteration in the established forms of worship was first ventured upon at Wittemberg, by abolishing the celebration of private masses, and by giving the cup as well as the bread to the laity in the Lord's supper. In a short time, however, the new opinions were condemned by the university of Paris, and a refutation of them was attempted by Henry VIII. of England. But Luther was not to be thus intimidated. He published his animadversions on both with as much acrimony as if he had been refuting the meanest adversary; and a controversy managed by such illustrious antagonists drew a general attention, and the Reformers daily gained new converts both in France and England.

But while the efforts of Luther were thus everywhere crowned with success, the divisions began to prevail among those which have since so much agitated the reformed churches. The first dispute was between Luther and Zuinglius concerning the manner in which the body and blood of Christ were present in the eucharist. Luther and his followers, though they had rejected the notion of transubstantiation, were nevertheless of opinion that the body and blood of Christ were really present in the Lord's supper, in a way which they could not pretend to explain. Carlostadt, who was Luther's colleague, first suggested another view of the subject, which was afterwards confirmed and illustrated by Zuinglius, namely, that the body and blood of Christ were not really present in the eucharist; and that the bread and wine were no more than external symbols to excite the remembrance of Christ's sufferings in the minds of those who received it. Both parties maintained their tenets with the utmost obstinacy; and, by their divisions, first gave their adversaries an argument against them, which to this day the Catholics urge with great force; namely, that the Protestants are so divided, that it is impossible to know who is right or wrong; and that there cannot be a stronger proof than these divisions, that the whole doctrine is false.

To these intestine divisions were added the horrors of a civil war, occasioned by oppression on the one hand, and enthusiasm on the other. In 1525, a great number of seditious fanatics arose on a sudden in different parts of Germany, took arms, united their forces, and made war against the empire, laying waste the country with fire and sword, and committing everywhere the greatest cruelties. The greatest part of this furious mob was composed of peasants and vassals, who groaned under heavy burdens, and declared that they were no longer able to bear the despotic government of their chiefs; and hence this sedition had the name of *the rustic war*, or the *war of the peasants*. At first this rabble declared, that they had no other motives than the redress of their grievances; but no sooner had the enthusiast Munzer, or Munster, the anabaptist, put himself at their head, than the face of things was entirely changed, and the civil commotions in Saxony and Thuringia exceedingly increased, of which an account is given under the article ANABAPTISTS.

In the mean time Frederic, surnamed the *Wise*, elector of Saxony, and Luther's great patron, departed this life, and was succeeded by his brother John. Frederic, though he had protected and encouraged Luther, yet was at no pains to introduce the reformed religion into

Reformation.

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Form of
worship
altered in
Wittem-
berg.

6
Disputes
among the
Reformers.

7
Disturbances in Germany.

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Reforma-
tion esta-
blished in
Saxony.

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Resolutions
at the diet
of Spire fa-
vourable to
the Refor-
mation.

his dominions. But with his successor it was otherwise; for he, convinced that Luther's doctrine must soon be totally destroyed and suppressed unless it received a speedy and effectual support, ordered Luther and Melancthon to draw up a body of laws relating to the form of ecclesiastical government, the method of public worship, &c. which was to be proclaimed by heralds throughout his dominions. This example was followed by all the princes and states of Germany who renounced the papal supremacy; and a like form of worship, discipline, and government, was thus introduced into all the churches which dissented from that of Rome. This open renunciation of the Romish jurisdiction soon changed the face of affairs; and the patrons of Popery soon intimated, in a manner not at all ambiguous, that they intended to make war on the Lutheran party; which would certainly have been put in execution, had not the troubles that took place in Europe disconcerted their measures. On the other hand, the Lutherans, apprized of these hostile intentions, began also to deliberate on a proper plan of defence against that superstitious violence with which they were in danger of being assailed. The diet of the empire assembled at Spire, in the year 1526; where the emperor's ambassadors were desired to use their utmost endeavours to suppress all disputes about religion, and to insist upon the rigorous execution of the sentence which had been pronounced against Luther and his followers at Worms. The greatest part of the German princes opposed this motion with the utmost resolution, declaring that they could not execute that sentence, nor come to any determination with regard to the doctrines by which it had been occasioned, before the whole matter was submitted to the decision of a council lawfully assembled; alleging farther, that the decision of controversies of this nature belonged properly to it, and to it alone. This opinion, after long and very warm debates, was adopted by a great majority, and at length consented to by the whole assembly: for it was unanimously agreed to present a solemn address to the emperor, intreating him to assemble, without delay, a free and general council; while in the mean time it was also agreed, that the princes of the empire should, in their respective dominions, be at liberty to manage ecclesiastical affairs in the manner they should think most proper; yet so as to be able to give to God and the emperor a proper account of their administration when it should be required of them.

These resolutions proved extremely favourable to the cause of reformation; neither had the emperor any leisure for some time to give disturbance to the reformed. The war, which at this time ensued between him and the pope, gave the greatest advantage to the friends of the reformed, and considerably augmented their number. Several princes, whom the fear of persecution and punishment had hitherto prevented from lending their assistance, publicly renounced the Romish superstition, and introduced among their subjects the same forms of religious worship, and the same system of doctrine, that had been received in Saxony. Others, though placed in such circumstances as discouraged them from acting in an open manner against the interests of the Roman pontiff, were, however, far from discovering the smallest opposition to those who withdrew the people from his despotic yoke; nor did they molest the private assemblies of those who had separated themselves from the

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church of Rome. And in general, all the Germans who, before these resolutions of the diet of Spire, had rejected the papal discipline and doctrine, were now, in consequence of the liberty they enjoyed, wholly employed in bringing their schemes and plans to a certain degree of consistence, and in adding vigour and firmness to the cause in which they were engaged. But this tranquillity and liberty was of no long duration. In 1529, a new diet was assembled at the same place by the emperor, after he had quieted the troubles in various parts of his dominions, and concluded a peace with the pope. The power which had been granted to princes of managing ecclesiastical affairs till the meeting of a general council, was now revoked by a majority of votes; and every change declared unlawful that should be introduced into the doctrine, discipline, or worship of the established religion, before the determination of the approaching council was known. This decree was considered as iniquitous and intolerable by the elector of Saxony, the landgrave of Hesse, and other members of the diet, who were persuaded of the necessity of a reformation. The promise of speedily assembling a general council, they looked upon to be an artifice of the church of Rome; well knowing, that a free and lawful council would be the last thing to which the pope would consent. When, therefore, they found that all their arguments and remonstrances made no impression upon Ferdinand the emperor's brother, who presided in the diet, Charles himself being then at Barcelona, they entered a solemn protest against this decree on the 19th of April, and appealed to the emperor and a future council. Hence arose the denomination of *Protestants*, which from this period has been given to those who separate from the communion of the church of Rome. The princes of the empire who entered this protest were, John elector of Saxony; George elector of Brandenburg; Ernest and Francis dukes of Lunenburg; the landgrave of Hesse; and the prince of Anhalt. These were seconded by 13 imperial towns, viz. Strasburg, Ulm, Nuremberg, Constance, Rottingen, Windseim, Memmingen, Nortlingen, Lindaw, Kempton, Heilbron, Wisseburg, and St Gall.

The dissenting princes, who were the protectors and heads of the reformed churches, had no sooner entered their protest, than they sent proper persons to the emperor, who was then upon his passage from Spain to Italy, to acquaint him with their proceedings in this matter. The ministers employed in this commission executed it with the greatest intrepidity and presence of mind; but the emperor, exasperated at the audacity of those who presumed to differ from him, caused the ambassadors to be arrested. The news of this violent step made the Protestant princes conclude, that their personal safety, and the success of their cause, depended entirely upon their own courage and union. They determined, therefore, to enter into a solemn confederacy: for which purpose they held several meetings at Rot, Nuremberg, Smalcald, and other places: but so different were their opinions and views, that they could determine upon nothing.

One great obstacle to the intended confederacy was the dispute which had arisen between Luther and Zuinglius concerning the real presence of Christ in the Lord's Supper. To terminate this dispute, if possible, Philip, landgrave of Hesse, invited, in the year 1529, to

Reforma-
tion.

10
Revoked by
the empe-
ror.

11
Origin of
the name
Protestants.

12
Conference
between
Luther and
Zuinglius.

Reforma-
tion.

a conference at Marburg, Luther and Zuinglius, together with several other of the more eminent doctors who adhered to the respective parties of these contending chiefs: but this measure was not attended with the salutary effects which were expected from it. The divines disputed for four days in presence of the landgrave. Luther attacked Oecolampadius, and Zuinglius was attacked by Melancthon. Zuinglius was accused of heresy, not only on account of his explanation of the nature and design of the Lord's Supper, but also in consequence of the false notions he was supposed to have adopted concerning the divinity of Christ, the efficacy of the divine word, original sin, and some other parts of the Christian doctrine. This illustrious reformer, however, cleared himself from the greatest part of these charges with the most triumphant evidence, and in such a manner as appeared satisfactory even to Luther himself: but their dissension concerning the manner of Christ's presence in the eucharist still remained; nor could either of the contending parties be persuaded to abandon, or even to modify, their opinions on that matter. The only advantage, therefore, which resulted from the meeting was, that the jarring doctors formed a kind of truce, by agreeing to a mutual toleration of their sentiments, and leaving to the disposal of Providence the cure of their divisions.

In the mean time news were received that the emperor designed to come into Germany, with a view to terminate all religious differences at the approaching diet of Augsburg. Having foreseen some of the consequences of those disputes, and, besides, taken the advice of men of wisdom, sagacity, and experience, he became at certain times more cool in his proceedings, and more impartial in his opinions both of the contending parties and the merits of the cause. He, therefore, in an interview with the pope at Bologna, insisted, in the most serious and urgent manner, on the necessity of a general council. His remonstrances and expostulations, however, could not move the pontiff; who maintained with zeal the papal prerogatives, reproached the emperor with an ill-judged clemency, and alleged that it was the duty of that prince to support the church, and to execute speedy vengeance upon that obstinate heretical faction who dared to call in question the authority of Rome and its pontiff. To this discourse the emperor paid no regard; looking upon it as a most iniquitous thing, and a measure directly opposite to the laws of the empire, to condemn unheard a set of men who had always approved themselves good citizens, and deserved well of their country in several respects. Hitherto indeed it was not easy for the emperor to form a clear idea of the matters in debate, since there was no regular system as yet composed, by which it might be known with certainty what were the true causes of Luther's opposition to the pope. The elector of Saxony, therefore, ordered Luther, and other eminent divines, to commit to writing the chief articles of their religious system, and the principal points in which they differed from the church of Rome. Luther, in compliance with this order, delivered to the elector at Torgaw 17 articles which had been agreed upon in a conference at Sultzbach in 1529; from whence these received the name of *the articles of Torgaw*. But though these were deemed by Luther a sufficient declaration of the sentiments of the reformers, yet it was judged proper to en-

large them, in order to give perspicuity to their arguments, and strength to their cause. In this work Melancthon was employed; in which he showed a proper deference to the counsels of Luther, and expressed his sentiments and doctrine with the greatest elegance and perspicuity; and thus came forth to view the famous *Confession of Augsburg*.

On the 15th of June 1530, Charles arrived at Augsburg, and the diet was opened five days after. The Protestants received a formal permission to present an account of their tenets to the diet on the 25th of the same month; in consequence of which, at the time appointed, Christian Bayer, chancellor of Saxony, read, in the German language, before the emperor and the princes assembled, the confession of Augsburg above-mentioned. It contained 28 chapters, of which 21 were employed in representing the religious opinions of the Protestants, and the other seven in pointing out the errors and superstitions of the church of Rome. The princes heard it with the deepest attention and recollection of mind: it confirmed some in the principles they had embraced; surprised others; and many, who before this time had little or no idea of the religious sentiments of Luther, were now not only convinced of their innocence, but delighted with their purity and simplicity. The copies of this Confession, which after

being read were delivered to the emperor, were signed by John elector of Saxony, George marquis of Brandenburg, Ernest duke of Lunenburg, Philip landgrave of Hesse, Wolfgang prince of Anhalt, and by the imperial cities of Nuremberg and Reutlingen. The creatures of the church of Rome who were present at this diet employed John Faber, afterwards bishop of Vienna, together with Eckius, and another doctor named *Cocklaus*, to draw up a refutation of the Protestant confession: which refutation having been publicly read, the emperor required the Protestant members to acquiesce in it, and put an end to the religious disputes by an unlimited submission to the opinions and doctrines contained in this answer. But this demand was far from being complied with. The Protestants declared on the contrary, that they were by no means satisfied with the reply of their adversaries; and earnestly desired a copy of it, that they might more fully demonstrate its extreme insufficiency and weakness. But this reasonable request was refused by the emperor; who interposed his supreme authority to prevent any farther proceedings in this matter, and solemnly prohibited the publication of any new writings or declarations that might contribute to lengthen out these religious debates. This, however, did not reduce the Protestants to silence. The divines of that communion, who had been present at the diet, endeavoured to recollect the arguments and objections employed by Faber, and had again recourse to the pen of Melancthon, who refuted them in an ample and satisfactory manner in a piece which was presented to the emperor on the 22d of September, but which Charles refused to receive. This answer was afterwards enlarged by Melancthon, when he had obtained a copy of Faber's reply; and was published in the year 1531, with the other pieces that related to the doctrine and discipline of the Lutheran church, under the title of *A Defence of the Confession of Augsburg*.

Matters now began to draw towards a crisis. There were only three ways of bringing to a conclusion these religious

13
Origin of
the confes-
sion of
Augsburg.

Reforma-
tion.

14
It is pra-
sented to
the empe-
ror.

15
A refuta-
tion of it,
in which
the Prote-
stants are
ordered to
acquiesce.

Reformation. religious differences. 1. To grant the Protestants a toleration and privilege of serving God as they thought proper: 2. To compel them to return to the church of Rome by the violent methods of persecution: or, 3. That a reconciliation should be made, upon fair, candid, and equitable terms, by engaging each of the parties to temper their zeal with moderation, to abate reciprocally the rigour of their pretensions, and remit something of their respective claims. The third expedient was most generally approved of, being peculiarly agreeable to all who had at heart the welfare of the empire; nor did the pope seem to look upon it either with aversion or contempt. Various conferences therefore were held between persons eminent for piety and learning on both sides; and nothing was omitted that might have the least tendency to calm the animosities and heal the divisions which reigned between the contending parties. But the differences were too great to admit of a reconciliation; and therefore the votaries of Rome had recourse to the powerful arguments of imperial edicts, and the force of the secular arm. On the

16
Severe decree against the Protestants.

19th of November, a severe decree was issued out by the express order of the emperor (during the absence of the Hessian and Saxon princes, who were the chief supporters of the Protestant cause), in which every thing was manifestly adapted to deject the friends of religious liberty, excepting only a faint and dubious promise of engaging the pope to assemble a general council about six months after the separation of the diet. In this decree the dignity and excellence of the Popish religion were extolled beyond measure, a new degree of severity and force was added to that which had been published at Worms against Luther and his adherents, the changes which had been introduced into the doctrine and discipline of the Protestant churches were severely censured, and a solemn order was addressed to the princes, cities, and states, who had thrown off the Papal yoke, to return to their allegiance to Rome, on pain of incurring the indignation and vengeance of the emperor as the patron and protector of the church. Of this formidable decree the elector of Saxony and confederated princes were no sooner informed, than they assembled in order to deliberate on the measures proper to be taken in such a crisis. In the years 1530 and 1531 they met, first at Smalcald, and afterwards at Francfort, where they formed a solemn alliance and confederacy, with the intention of defending vigorously their religion and liberties against the dangers and encroachments with which they were threatened by the edict of Augsburg, without attempting, however, any thing offensive against the votaries of Rome; and into this confederacy they invited the kings of England, France, Denmark, &c. leaving no means unemployed that might corroborate and cement this important alliance.

17
The league of Smalcald.

This confederacy was at first opposed by Luther, from an apprehension of the calamities and troubles which it might produce; but at last, perceiving the necessity of it, he consented; though he uncharitably, as well as imprudently, refused to comprehend in it the followers of Zuinglius among the Swiss, together with the German states and cities who had adopted the sentiments and confession of Bucer. In the invitation addressed to Henry VIII. of England, whom the confederate princes were willing to declare the head and protector of their league, the following things, among

18
Invitation to Henry VIII. of England.

Reformation. others, were expressly stipulated: That the king should encourage, promote, and maintain, the true doctrine of Christ as it was contained in the confession of Augsburg, and defend the same at the next general council: that he should not agree to any council summoned by the bishop of Rome, but protest against it; and neither submit to its decrees, nor suffer them to be respected in his dominions: that he should never allow the Roman pontiff to have any pre-eminence or jurisdiction in his dominions; that he should advance 100,000 crowns for the use of the confederacy, and double that sum if it became necessary: all which articles the confederate princes were equally obliged to observe on their part. To these demands the king replied, that he would maintain and promote the true doctrine of Christ; but, at the same time, as the true ground of that doctrine lay only in the holy Scriptures, he would not accept at any one's hand what should be his own faith, or that of his kingdom; and therefore desired that they would send over two learned men to confer with him, in order to promote a religious union between him and the confederates. However, he declared himself of their opinion with regard to the meeting of a free general council, and promised to join with them in all such councils for the defence of the true doctrine; but thought the regulation of the ceremonial part of religion, being a matter of indifference, ought to be left to the choice of each sovereign for his own dominions. After this the king gave them a second answer more full and satisfactory; but after the execution of queen Anne, this negotiation came to nothing. On the one hand, the king grew cold when he perceived that the confederates were no longer of use to him in supporting the validity of his marriage; and, on the other hand, the German princes became sensible that they could never succeed with Henry unless they allowed him an absolute dictatorship in matters of religion.

While every thing thus tended to an open war between the two opposite parties, the elector Palatine, and the elector of Mentz, offered their mediation, and endeavoured to procure a reconciliation. The emperor himself, for various reasons, was at this time inclined to peace: for, on the one hand, he stood in need of succours against the Turks, which the Protestant princes refused to grant as long as the edicts of Worms and Augsburg remained in force; and, on the other, the election of his brother Ferdinand to the dignity of king of the Romans, which had been carried by a majority of votes at the diet of Cologne in 1531, was by the same princes contested, as being contrary to the fundamental laws of the empire. In consequence of all this, after many negotiations and projects of reconciliation, a treaty of peace was concluded at Nuremberg in 1532, between the emperor and the Protestant princes, on the following conditions; viz. That the latter should furnish a subsidy for carrying on the war against the Turks, and acknowledge Ferdinand lawful king of the Romans; and that the emperor on his part should abrogate and annul the edicts of Worms and Augsburg, and allow the Lutherans the free and undisturbed exercise of their religious doctrine and discipline, until a rule of faith was fixed either in the free general council that was to be assembled in the space of six months, or in a diet of the empire.

19
Peace of Nuremberg concluded.

Soon after the conclusion of the peace at Nuremberg

Reforma-
tion.

died John elector of Saxony, who was succeeded by his son John Frederic, a prince of invincible fortitude and magnanimity, but whose reign was little better than one continued train of disappointments and calamities. The religious truce, however, gave new vigour to the reformation. Those who had hitherto been only secret enemies to the Roman pontiff, now publicly threw off his yoke; and various cities and provinces of Germany enlisted themselves under the religious standards of Luther. On the other hand, as the emperor had now no other hope of terminating the religious disputes but by the meeting of a general council, he repeated his requests to the pope for that purpose. The pontiff (Clement VII.), whom the history of past councils filled with the greatest uneasiness, endeavoured to retard what he could not with decency refuse. At last, in 1533, he made a proposal by his legate to assemble a council at Mantua, Placentia, or Bologna; but the Protestants refused their consent to the nomination of an Italian council, and insisted that a controversy which had its rise in the heart of Germany, should be determined within the limits of the empire. The pope, by his usual artifices, eluded the performance of his own promise; and, in 1534, was cut off by death, in the midst of his stratagems. His successor Paul III. seemed to show less reluctance to the assembling a general council, and in the year 1535 expressed his inclination to convoke one at Mantua; and, the year following, actually sent circular letters for that purpose through all the states and kingdoms under his jurisdiction. This council was summoned by a bull issued out on the 2d of June 1536, to meet at Mantua the following year: but several obstacles prevented its meeting; one of the most material of which was, that Frederic duke of Mantua had no inclination to receive at once so many guests, some of them very turbulent, into the place of his residence. On the other hand, the Protestants were firmly persuaded that, as the council was assembled in Italy, and by the authority of the pope alone, the latter must have had an undue influence in that assembly; of consequence, that all things must have been carried by the votaries of Rome. For this reason they assembled at Smalcald in the year 1537, where they solemnly protested against this partial and corrupt council, and, at the same time, had a new summary of their doctrine drawn up by Luther, in order to present it to the assembled bishops if it should be required of them. This summary, which had the title of *The Articles of Smalcald*, is commonly joined with the creeds and confessions of the Lutheran church.

21
Protesta-
tion against
it.22
Fruitless
schemes of
accommo-
dation.

After the meeting of the general council in Mantua was thus prevented, many schemes of accommodation were proposed both by the emperor and the Protestants; but, by the artifices of the church of Rome, all of them came to nothing. In 1541, the emperor appointed a conference at Worms on the subject of religion, between persons of piety and learning chosen from the contending parties. This conference, however, was, for certain reasons, removed to the diet which was to be held at Ratisbon that same year, and in which the principal subject of deliberation was a memorial presented by a person unknown, containing a project of peace. But the conference produced no other effect than a mutual agreement of the contending parties to refer their matters to a general council, or, if

the meeting of such a council should be prevented, to the next German diet.

This resolution was rendered ineffectual by a variety of incidents, which widened the breach, and put off to a farther day the deliberations which were designed to heal it. The pope ordered his legate to declare to the diet of Spire, assembled in 1542, that he would, according to the promise he had already made, assemble a general council, and that Trent should be the place of its meeting, if the diet had no objection to that city. Ferdinand, and the princes who adhered to the cause of the pope, gave their consent to this proposal; but it was vehemently objected to by the Protestants, both because the council was summoned by the authority of the pope only, and also because the place was within the jurisdiction of the Pope; whereas they desired a free council, which should not be biased by the dictates, nor awed by the proximity, of the pontiff. But this protestation produced no effect. Paul III. persisted in his purpose, and issued out his circular letters for the convocation of the council, with the approbation of the emperor. In justice to this pontiff, however, it must be observed, that he showed himself not to be averse to every reformation. He appointed four cardinals, and three other persons eminent for their learning, to draw up a plan for the reformation of the church in general, and of the church of Rome in particular. The reformation proposed in this plan was indeed extremely superficial and partial, yet it contained some particulars which could scarcely have been expected from those who composed it. They complained of the pride and ignorance of the bishops, and proposed that none should receive orders but learned and pious men; and that therefore care should be taken to have proper masters for the instruction of youth. They condemned translations from one benefice to another, grants of reservation, non-residence, and pluralities. They proposed that some convents should be abolished; that the liberty of the press should be restrained and limited; that the colloquies of Erasmus should be suppressed; that no ecclesiastic should enjoy a benefice out of his own country; that no cardinal should have a bishopric; that the questors of St Anthony and several other saints should be abolished; and, which was the best of all their proposals, that the effects and personal estates of ecclesiastics should be given to the poor. They concluded with complaining of the prodigious number of indigent and ragged priests who frequented St Peter's church; and declared, that it was a great scandal to see the whores lodged so magnificently at Rome, and riding through the streets on fine mules, while the cardinals and other ecclesiastics accompanied them in the most courteous manner. This plan of reformation was turned into ridicule by Luther and Sturmius; and indeed it left unredressed the most intolerable grievances of which the Protestants complained.

All this time the emperor had been labouring to persuade the Protestants to consent to the meeting of the council at Trent; but when he found them fixed in their opposition to this measure, he began to listen to the sanguinary measures of the pope, and resolved to terminate the disputes by force of arms. The elector of Saxony and landgrave of Hesse, who were the chief supporters of the Protestant cause, upon this took proper

23
Council of
Trent pro-
posed.24
Plan of re-
formation
proposed
by the
pope.25
War be-
tween the
emperor
and the
Protestants.

Reforma-
tion. proper measures to prevent their being surpris'd and overwhelmed by a superior force; but, before the horrors of war commenced, the great reformer Luther died in peace at Ayselben, the place of his nativity, in 1546.

The emperor and the pope had mutually resolv'd on the destruction of all who should dare to oppose the council of Trent. The meeting of it was to serve as a signal for taking up arms; and accordingly its deliberations were scarcely begun in 1546, when the Protestants perceiv'd undoubted signs of the approaching storm, and a formidable union betwixt the emperor and pope, which threatened to crush and overwhelm them at once. This year indeed there had been a new conference at Ratibon upon the old subject of accommodating differences in religion; but from the manner in which the debates were carried on, it plainly appear'd that these differences could only be decid'd in the field of battle. The council of Trent, in the mean time, promulgated their decrees; while the reformed princes, in the diet of Ratibon, protest'd against their authority, and were on that account proscribed by the emperor, who rais'd an army to reduce them to obedience. See *Father Paul's History of the Council of Trent*, and our articles PAUL (Father), and TRENT.

26 The elector of Saxony and the landgrave of Hesse led their forces into Bavaria against the emperor, and cannonaded his camp at Ingoldstalt. It was suppos'd that this would bring on an engagement, which would probably have been advantageous to the cause of the reformed; but this was prevented, chiefly by the perfidy of Maurice duke of Saxony, who invaded the dominions of his uncle. Divisions were also fomented among the confederate princes, by the dissimulation of the emperor; and France fail'd in paying the subsidy which had been promis'd by its monarch: all which so discourag'd the heads of the Protestant party, that their army soon dispers'd, and the elector of Saxony was oblig'd to direct his march homewards. But he was pursu'd by the emperor, who made several forced marches, with a view to destroy his enemy before he should have time to recover his vigour. The two armies met near Muhlberg, on the Elbe, on the 24th of April 1547; and, after a bloody action, the elector was entirely defeated, and himself taken prisoner.—Maurice, who had so basely betray'd him, was now declar'd elector of Saxony; and by his intreaties Philip landgrave of Hesse, the other chief of the Protestants, was persuad'd to throw himself on the mercy of the emperor, and to implore his pardon. To this he consented, relying on the promise of Charles for obtaining forgiveness, and being restor'd to liberty; but, notwithstanding these expectations, he was unjustly detain'd prisoner, by a scandalous violation of the most solemn convention. It is said that the emperor retract'd his promise, and delud'd this unhappy prince by the ambiguity of two German words. History indeed can scarce afford a parallel to the perfidious, mean-spirited, and despotic behaviour of the emperor in the present case. After having received in public the humble submission of the prince on his knees, and after having set him at liberty by a solemn treaty, he had him arrest'd anew without any reason, nay, without any pretence, and kept him close prisoner for several years. When Maurice remonstrated against this new confinement, the emperor answer'd,

that he had never promis'd that the landgrave should not be imprison'd anew, but only that he should be exempted from perpetual imprisonment; and, to support this assertion, he produc'd the treaty, in which his ministers had perfidiously foisted *ewiger gefangnis*, which signifies a "perpetual prison," instead of *einiger gefangnis*, which signifies "any prison." This, however, is contest'd by some historians.

The affairs of the Protestants now seem'd to be desperate. In the diet of Augsburg, which was soon after call'd, the emperor required the Protestants to leave the decision of these religious disputes to the wisdom of the council which was to meet at Trent. The greatest part of the members consented to this proposal, being convinc'd by the powerful argument of an imperial army, which was at hand to dispel the darkness from the eyes of such as might otherwise have been blind to the force of Charles's reasoning. However, this general submission did not produce the effect which was expected from it. A plague which broke out, or was said to do so, in the city, caus'd the greatest part of the bishops to retire to Bologna; by which means the council was in effect dissolv'd, nor could all the intreaties and remonstrances of the emperor prevail upon the pope to re-assemble it without delay. During this interval, therefore, the emperor judg'd it necessary to fall upon some method of accommodating the religious differences, and maintaining peace until the council so long expected should be finally obtained. With this view he order'd Julius Pelugius bishop of Naumberg, Michael Sidonius, a creature of the pope, and John Agricola, a native of Ayselben, to draw up a formulary which might serve as a rule of faith and worship, till the council should be assembled: but as this was only a temporary expedient, and had not the force of a permanent or perpetual institution, it thence obtain'd the name of the *Interim*.

This project of Charles was form'd partly with a design to vent his resentment against the pope, and partly to answer other political purposes. It contain'd all the essential doctrines of the church of Rome, though considerably soften'd by the artful terms which were employ'd, and which were quite different from those employ'd before and after this period by the council of Trent. There was even an affect'd ambiguity in many of the expressions, which made them susceptible of different senses, and applicable to the sentiments of both communions. The consequence of all this was, that the imperial creed was reprobated by both parties. However, it was promulgated with great solemnity by the emperor at Augsburg. The elector of Mentz, without even asking the opinion of the princes present, gave a sanction to this formula, as if he had been commission'd to represent the whole diet. Many kept silence through fear, and that silence was interpret'd as a tacit consent. Some had the courage to oppose it, and these were reduc'd by force of arms; and the most deplorable scenes of bloodshed and violence were act'd throughout the whole empire. Maurice, elector of Saxony, who had hitherto kept neutral, now assembled the whole of his nobility and clergy, in order to deliberate on this critical affair. At the head of the latter was Melancthon, whose word was respect'd as a law among the Protestants. But

Reforma-
tion.

30
Scheme of
reconcilia-
tion by
Melan-
thon.

31
A new
council pro-
posed at
Trent.

33
The emperor
is sur-
prised, and
forced to a
peace by
the elector
of Saxony.

this man had not the courage of Luther; and was therefore on all occasions ready to make concessions, and to propose schemes of accommodation. In the present case, therefore, he gave it as his opinion, that the whole of the book called *Interim* could not by any means be adopted by the Protestants; but at same time he declared, that he saw no reason why this book might not be approved, adopted, and received, as an authoritative rule in things that did not relate to the essential parts of religion, and which he accounted indifferent. But this scheme, instead of cementing the differences, made them much worse than ever; and produced a division among the Protestants themselves, which might have overthrown the Reformation entirely, if the emperor and pope had seized the opportunity.

In the year 1549, the pope (Paul III.) died; and was succeeded by Julius III. who, at the repeated solicitations of the emperor, consented to the re-assembling of a council at Trent. A diet was again held at Augsburg under the cannon of an imperial army, and Charles laid the matter before the princes of the empire. Most of those present gave their consent to it, and among the rest Maurice elector of Saxony; who consented on the following conditions: 1. That the points of doctrine which had already been decided there, should be re-examined. 2. That this examination should be made in presence of the Protestant divines. 3. That the Saxon Protestants should have a liberty of voting as well as of deliberating in the council. 4. That the pope should not pretend to preside in that assembly, either in person or by his legates. This declaration of Maurice was read in the diet, and his deputies insisted upon its being entered into the registers which the archbishop of Mentz obstinately refused. The diet was concluded in the year 1551; and, at its breaking up, the emperor desired the assembled princes and states to prepare all things for the approaching council, and promised to use his utmost endeavours to procure moderation and harmony, impartiality and charity, in the transactions of that assembly.

On the breaking up of the diet, the Protestants took such steps as they thought most proper for their own safety. The Saxons employed Melancthon, and the Wurtembergers Brengius, to draw up Confessions of Faith to be laid before the new council. The Saxon divines, however, proceeded no farther than Nuremberg, having received secret orders from Maurice to stop there: For the elector, perceiving that Charles had formed designs against the liberties of the German princes, resolved to take the most effectual measures for crushing his ambition at once. He therefore entered with the utmost secrecy and expedition into an alliance with the king of France, and several of the German princes, for the security of the rights and liberties of the empire; after which, assembling a powerful army in 1552, he marched against the emperor, who lay with a handful of troops at Inspruck, and expected no such thing. By this sudden and unforeseen accident Charles was so much dispirited, that he was willing to make peace almost on any terms. The consequence of this was, that he concluded a treaty at Passau, which by the Protestants is considered as the basis of their religious liberty. By the first three articles of this treaty it

was agreed, that Maurice and the confederates should lay down their arms, and lend their troops to Ferdinand to assist him against the Turks; and that the landgrave of Hesse should be set at liberty. By the fourth it was agreed, that the Rule of Faith called the *Interim* should be considered as null and void: that the contending parties should enjoy the free and undisturbed exercise of their religion, until a diet should be assembled to determine amicably the present disputes (which diet was to meet in the space of six months); and that this religious liberty should continue always, in case it should be found impossible to come to an uniformity in doctrine and worship. It was also determined, that all those who had suffered banishment, or any other calamity, on account of their having been concerned in the league or war of Smalcald, should be reinstated in their privileges, possessions, and employments; that the imperial chamber at Spire should be open to the Protestants as well as to the Catholics; and that there should always be a certain number of Lutherans in that high court.—To this peace Albert, marquis of Brandenburg, refused to subscribe; and continued the war against the Roman-catholics, committing such ravages in the empire, that a confederacy was at last formed against him. At the head of this confederacy was Maurice elector of Saxony, who died of a wound he received in a battle fought on the occasion in 1553.

The assembling of the diet promised by Charles was prevented by various incidents; however it met at Augsburg in 1555, where it was opened by Ferdinand in name of the emperor, and terminated those deplorable calamities which had so long desolated the empire. After various debates, the following acts were passed, on the 25th of September: That the Protestants who followed the Confession of Augsburg should be for the future considered as entirely free from the jurisdiction of the Roman pontiff, and from the authority and superintendence of the bishops; that they were left at perfect liberty to enact laws for themselves relating to their religious sentiments, discipline, and worship; that all the inhabitants of the German empire should be allowed to judge for themselves in religious matters, and to join themselves to that church whose doctrine and worship they thought the most pure and consonant to the spirit of true Christianity; and that all those who should injure or persecute any person under religious pretences, and on account of their opinions, should be declared and proceeded against as public enemies of the empire, invaders of its liberty, and disturbers of its peace.

Thus was the Reformation established in many parts of the German empire, where it continues to this day; nor have the efforts of the Popish powers at any time been able to suppress it, or even to prevent it from gaining ground. It was not, however, in Germany alone that a reformation of religion took place. Almost all the kingdoms of Europe began to open their eyes to the truth about the same time. The reformed religion was propagated in Sweden, soon after Luther's rupture with the church of Rome, by one of his disciples named *Olaus Petri*. The zealous efforts of this missionary were seconded by Gustavus Vasa, whom the Swedes had raised to the throne in place of Christiern king of Denmark, whose horrid barbarity lost him the crown. This prince, however, was as

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mation in
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prudent as he was zealous; and, as the minds of the Swedes were in a fluctuating state, he wisely avoided all kind of vehemence and precipitation in spreading the new doctrine. Accordingly, the first object of his attention was the instruction of his people in the sacred doctrines of the Holy Scriptures: for which purpose he invited into his dominions several learned Germans, and spread abroad through the kingdom the Swedish translation of the Bible that had been made by Olaus Petri. Some time after this, in 1526, he appointed a conference at Upsal, between this reformer and Peter Gallius, a zealous defender of the ancient superstition, in which each of the champions was to bring forth his arguments, that it might be seen on which side the truth lay. In this dispute Olaus obtained a signal victory; which contributed much to confirm Gustavus in his persuasion of the truth of Luther's doctrine, and to promote its progress in Sweden. The following year another event gave the finishing stroke to its propagation and success. This was the assembly of the states at Westeraas, where Gustavus recommended the doctrine of the reformers with such zeal, that, after warm debates fomented by the clergy in general, it was unanimously resolved that the reformation introduced by Luther should have place in Sweden. This resolution was principally owing to the firmness and magnanimity of Gustavus, who declared publicly, that he would lay down the sceptre and retire from the kingdom, rather than rule a people enslaved by the orders and authority of the pope, and more controuled by the tyranny of their bishops than by the laws of their monarch. From this time the papal empire in Sweden was entirely overthrown, and Gustavus declared head of the church.

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In Denmark, the reformation was introduced as early as the year 1521, in consequence of the ardent desire discovered by Christiern II. of having his subjects instructed in the doctrines of Luther. This monarch, notwithstanding his cruelty, for which his name has been rendered odious, was nevertheless desirous of delivering his dominions from the tyranny of the church of Rome. For this purpose, in the year 1520, he sent for Martin Reinard, one of the disciples of Carlostadt, out of Saxony, and appointed him professor of divinity at Hafnia; and after his death, which happened in 1521, he invited Carlostadt himself to fill that important place. Carlostadt accepted of this office indeed, but in a short time returned to Germany; upon which Christiern used his utmost endeavours to engage Luther to visit his dominions, but in vain. However, the progress of Christiern, in reforming the religion of his subjects, or rather of advancing his own power above that of the church, was checked, in the year 1523, by a conspiracy, by which he was deposed and banished; his uncle Frederic, duke of Holstein and Sleswic, being appointed his successor.

Frederic conducted the reformation with much greater prudence than his predecessor. He permitted the Protestant doctors to preach publicly the sentiments of Luther, but did not venture to change the established government and discipline of the church. However, he contributed greatly to the progress of the reformation, by his successful attempts in favour of religious liberty in an assembly of the states held at Odensee in 1527. Here he procured the publication of a famous

edict, by which every subject of Denmark was declared free either to adhere to the tenets of the church of Rome, or to the doctrine of Luther. The papal tyranny was totally destroyed by his successor Christiern III. He began by suppressing the despotic authority of the bishops, and restoring to their lawful owners a great part of the wealth and possessions which the church had acquired by various stratagems. This was followed by a plan of religious doctrine, worship, and discipline, laid down by Bugenhagenius, whom the king had sent for from Wittemberg for that purpose; and in 1539 an assembly of the states at Odensee gave a solemn sanction to all these transactions.

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In France also, the reformation began to make some progress very early. Margaret queen of Navarre, sister to Francis I. the perpetual rival of Charles V. was a great friend to the new doctrine; and it appears that, as early as the year 1523, there were in several of the provinces of France great numbers of people who had conceived the greatest aversion both to the doctrine and tyranny of the church of Rome; among whom were many of the first rank and dignity, and even some of the episcopal order. But as their number increased daily, and troubles and commotions were excited in several places on account of the religious differences, the authority of the king intervened, and many persons eminent for their virtue and piety were put to death in the most barbarous manner. Indeed Francis, who had either no religion at all, or, at best, no fixed and consistent system of religious principles, conducted himself towards the Protestants in such a manner as best answered his private views. Sometimes he resolved to invite Melancthon into France, probably with a view to please his sister the queen of Navarre, whom he loved tenderly, and who had strongly imbibed the Protestant principles. At other times he exercised the most infernal cruelty towards the reformed; and once made the following mad declaration, That if he thought the blood in his arm was tainted by the Lutheran heresy, he would have it cut off; and that he would not spare even his own children, if they entertained sentiments contrary to those of the Catholic church.

About this time the famous Calvin began to draw the attention of the public, but more especially of the queen of Navarre. His zeal exposed him to danger; and the friends of the reformation, whom Francis was daily committing to the flames, placed him more than once in the most perilous situation, from which he was delivered by the interposition of the queen of Navarre. He therefore retired out of France to Basil in Switzerland; where he published his Christian Institutions, and became afterwards so famous.

Those among the French who first renounced the jurisdiction of the Romish church, are commonly called *Lutherans* by the writers of those early times. Hence it has been supposed that they had all imbibed the peculiar sentiments of Luther. But this appears by no means to have been the case: for the vicinity of the cities of Geneva, Lausanne, &c. which had adopted the doctrines of Calvin, produced a remarkable effect upon the French Protestant churches; inasmuch that, about the middle of this century, they all entered into communion with the church of Geneva. The French Protestants were called *Huguenots*,* by their ad-

* See *Hu-
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versaries,

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† See
France,
n^o 137, 141
—149.

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In the Ne-
therlands,
&c.

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In Italy.

versaries, by way of contempt. Their fate was very severe, being persecuted with unparalleled fury; and though many princes of the blood, and of the first nobility, had embraced their sentiments, yet in no part of the world did the reformers suffer so much†. At last all commotions were quelled by the fortitude and magnanimity of Henry IV. who in the year 1598 granted all his subjects full liberty of conscience by the famous Edict of Nantes, and seemed to have thoroughly established the reformation throughout his dominions. During the minority of Louis XIV. however, this edict was revoked by Cardinal Mazarine, since which time the Protestants have often been cruelly persecuted; nor was the profession of the reformed religion in France at any time so safe as in most other countries of Europe. See REVOLUTION.

In the other parts of Europe the opposition to the church of Rome was but faint and ambiguous before the dict of Augsburg. Before that period, however, it appears from undoubted testimony, that the doctrine of Luther had made a considerable, though probably secret, progress through Spain, Hungary, Bohemia, Britain, Poland, and the Netherlands; and had in all these countries many friends, of whom several repaired to Wittenberg, in order to enlarge their knowledge by means of Luther's conversation. Some of these countries threw off the Romish yoke entirely, and in others a prodigious number of families embraced the principles of the reformed religion. It is certain indeed, and the Roman-catholics themselves acknowledge it without hesitation, that the Papal doctrines and authority would have fallen into ruin in all parts of the world at once, had not the force of the secular arm been employed to support the tottering edifice. In the Netherlands particularly, the most grievous persecutions took place, so that by the emperor Charles V. upwards of 100,000 were destroyed, while still greater cruelties were exercised upon the people by his son Philip II. The revolt of the United Provinces, however, and motives of real policy, at last put a stop to these furious proceedings; and, though in many provinces of the Netherlands, the establishment of the Popish religion was still continued, the Protestants have been long free of the danger of persecution on account of their principles.

The reformation made a considerable progress in Spain and Italy soon after the rupture between Luther and the Roman pontiff. In all the provinces of Italy, but more especially in the territories of Venice, Tuscany, and Naples, the superstition of Rome lost ground, and great numbers of people of all ranks expressed an aversion to the Papal yoke. This occasioned violent and dangerous commotions in the kingdom of Naples in the year 1546; which, however, were at last quelled by the united efforts of Charles V. and his viceroy Don Pedro di Toledo. In several places the pope put a stop to the progress of the reformation, by letting loose the inquisitors; who spread dreadful marks of their barbarity through the greatest part of Italy. These formidable ministers of superstition put so many to death, and perpetrated such horrid acts of cruelty and oppression, that most of the reformed consulted their safety by a voluntary exile, while others returned to the religion of Rome, at least in external appearance. But the inquisition, which frightened into the profession of Popery several Protestants in other parts of Italy,

could never make its way into the kingdom of Naples; nor could either the authority or intreaties of the pope engage the Neapolitans to admit even visiting inquisitors.

In Spain, several people embraced the Protestant religion, not only from the controversies of Luther, but even from those divines whom Charles V. had brought with him into Germany in order to refute the doctrines of Luther. For these doctors imbibed the pretended heresy instead of refuting it, and propagated it more or less on their return home. But the inquisition, which could obtain no footing in Naples, reigned triumphant in Spain, and by the most dreadful methods frightened the people back into Popery, and suppressed the desire of exchanging their superstition for a more rational plan of religion. It was indeed presumed that Charles himself died a Protestant; and it seems to be certain, that, when the approach of death had dissipated those schemes of ambition and grandeur which had so long blinded him, his sentiments became much more rational and agreeable to Christianity than they had ever been. All the ecclesiastics who had attended him, as soon as he expired, were sent to the inquisition, and committed to the flames, or put to death by some other method equally terrible. Such was the fate of Augustine Casal, the emperor's preacher; of Constantine Pontius, his confessor; of Egidius, whom he had named to the bishopric of Tortosa; of Bartholomew de Caranza, a Dominican, who had been confessor to King Philip and Queen Mary; with 20 others, of less note.

In England, the principles of the reformation began to be adopted as soon as an account of Luther's doctrines could be conveyed thither. In that kingdom there were still great remains of the sect called *Lollards*, whose doctrine resembled that of Luther; and among whom, of consequence, the sentiments of our reformer gained great credit. Henry VIII. king of England at that time was a violent partisan of the church of Rome, and had a particular veneration for the writings of Thomas Aquinas. Being informed that Luther spoke of his favourite author with contempt, he conceived a violent prejudice against the reformer, and even wrote against him, as we have already observed. Luther did not hesitate at writing against his majesty, overcame him in argument, and treated him with very little ceremony. The first step towards public reformation, however, was not taken till the year 1529. Great complaints had been made in England, and of a very ancient date, of the usurpations of the clergy; and by the prevalence of the Lutheran opinions, these complaints were now become more general than before. The House of Commons, finding the occasion favourable, passed several bills, restraining the impositions of the clergy: but what threatened the ecclesiastical order with the greatest danger were the severe reproaches thrown out almost without opposition in the house against the dissolute lives, ambition, and avarice of the priests, and their continual encroachments on the privileges of the laity. The bills for regulating the clergy met with opposition in the House of Lords; and bishop Fisher imputed them to want of faith in the Commons, and to a formed design, proceeding from heretical and Lutheran principles, of robbing the church of her patrimony, and overturning the national religion. The Commons, however, complain-
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ed to the king, by their speaker Sir Thomas Audley, of these reflections thrown out against them; and the bishop was obliged to retract his words.

Though Henry had not the least idea of rejecting any, even of the most absurd Romish superstitions, yet as the oppressions of the clergy suited very ill with the violence of his own temper, he was pleased with every opportunity of lessening their power. In the parliament of 1531, he showed his design of humbling the clergy in the most effectual manner. An obsolete statute was revived, from which it was pretended that it was criminal to submit to the legatine power which had been exercised by cardinal Wolsey. By this stroke the whole body of clergy was declared guilty at once. They were too well acquainted with Henry's disposition, however, to reply, that their ruin would have been the certain consequence of their not submitting to Wolsey's commission which had been given by royal authority. Instead of making any defence of this kind, they chose to throw themselves on the mercy of their sovereign; which, however, it cost them 118,840*l.* to procure. A confession was likewise extorted from them, that the king was protector and supreme head of the church of England; though some of them had the dexterity to get a clause inserted, which invalidated the whole submission, viz. *in so far as is permitted by the law of Christ.*

The king, having thus begun to reduce the power of the clergy, kept no bounds with them afterwards. He did not indeed attempt any reformation in religious matters; nay, he persecuted most violently such as did attempt this in the least. Indeed, the most essential article of his creed seems to have been his own supremacy; for whoever denied this, was sure to suffer the most severe penalties, whether Protestant or Papist. But an account of the absurd and cruel conduct of this prince, and of his final quarrel with the pope on account of his refusing a dispensation to marry Anne Boleyn, is given under the article ENGLAND, n^o 253—292.

He died in 1547, and was succeeded by his only son Edward VI. This amiable prince, whose early youth was crowned with that wisdom, sagacity, and virtue, that would have done honour to advanced years, gave new spirit and vigour to the Protestant cause, and was its brightest ornament, as well as its most effectual support. He encouraged learned and pious men of foreign countries to settle in England, and addressed a particular invitation to Martin Bucer and Paul Fagius, whose moderation added a lustre to their other virtues, that, by the ministry and labours of these eminent men, in concert with those of the friends of the Reformation in England, he might purge his dominions from the sordid fictions of popery, and establish the pure doctrines of Christianity in their place. For this purpose, he issued out the wisest orders for the restoration of true religion; but his reign was too short to accomplish fully such a glorious purpose. In the year 1553, he was taken from his loving and afflicted subjects, whose sorrow was inexpressible, and suited to their loss. His sister Mary (the daughter of Catharine of Arragon, from whom Henry had been separated by the famous divorce), a furious bigot to the church of Rome, and a princess whose natural character, like the spirit of her religion, was despotic and cruel, succeeded him on the British throne, and imposed anew the arbi-

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trary laws and the tyrannical yoke of Rome upon the people of England. Nor were the methods she employed in the cause of superstition better than the cause itself, or tempered by any sentiments of equity or compassion. Barbarous tortures and death, in the most shocking forms, awaited those who opposed her will, or made the least stand against the restoration of Popery. And among many other victims, the learned and pious Cranmer, archbishop of Canterbury, who had been one of the most illustrious instruments of the Reformation in England, fell a sacrifice to her fury. This odious scene of persecution was happily concluded in the year 1558, by the death of the queen, who left no issue; and, as soon as her successor the lady Elizabeth ascended the throne, all things assumed a new and a pleasing aspect. This illustrious princess, whose sentiments, counsels, and projects, breathed a spirit superior to the natural softness and delicacy of her sex, exerted this vigorous and manly spirit in the defence of oppressed conscience and expiring liberty, broke anew the despotic yoke of Papal authority and superstition, and, delivering her people from the bondage of Rome, established that form of religious doctrine and ecclesiastical government which still subsists in England. This religious establishment differs, in some respects, from the plan that had been formed by those whom Edward VI. had employed for promoting the cause of the Reformation, and approaches nearer to the rites and discipline of former times; though it is widely different, and, in the most important points, entirely opposite to the principles of the Roman hierarchy. See ENGLAND, n^o 293, &c.

The cause of the reformation underwent in Ireland⁴¹ the same vicissitudes and revolutions that had attended it in England. When Henry VIII. after the abolition of the Papal authority, was declared supreme head upon earth of the church of England, George Brown, a native of England, and a monk of the Augustine order, whom that monarch had created, in the year 1535, archbishop of Dublin, began to act with the utmost vigour in consequence of this change in the hierarchy. He purged the churches of his diocese from superstition in all its various forms, pulled down images, destroyed relics, abolished absurd and idolatrous rites, and, by the influence as well as authority he had in Ireland, caused the king's supremacy to be acknowledged in that nation. Henry showed, soon after, that this supremacy was not a vain title; for he banished the monks out of that kingdom, confiscated their revenues, and destroyed their convents. In the reign of Edward VI. still farther progress was made in the removal of Popish superstitions, by the zealous labours of bishop Brown, and the auspicious encouragement he granted to all who exerted themselves in the cause of the Reformation. But the death of this excellent prince, and the accession of queen Mary, had like to have changed the face of affairs in Ireland as much as in England; but her designs were disappointed by a very curious adventure, of which the following account has been copied from the papers of Richard earl of Corke. "Queen Mary having dealt severely with the Protestants in England, about the latter end of her reign⁴² signed a commission for to take the same course with Curious dis- them in Ireland; and to execute the same with greater appoint- force, she nominates Dr Cole one of the commissioners. ment of a Popish doc- This Doctor coming, with the commission, to Chester⁴³ tor in Scot- onland.

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on his journey, the mayor of that city hearing that her majesty was sending a messenger into Ireland, and he being a churchman, waited on the Doctor, who in discourse with the mayor taketh out of a cloke-bag a leather box, saying unto him, *Here is a commission that shall last the Heretics of Ireland*, calling the Protestants by that title. The good woman of the house being well affected to the Protestant religion, and also having a brother named *John Edmonds* of the same, then a citizen in Dublin, was much troubled at the Doctor's words; but watching her convenient time while the mayor took his leave, and the Doctor complimented him down the stairs, she opens the box, takes the commission out, and places in lieu thereof a sheet of paper with a pack of cards wrapt up therein, the knave of clubs being faced uppermost. The Doctor coming up to his chamber, suspecting nothing of what had been done, put up the box as formerly. The next day going to the water-side, wind and weather serving him, he sails towards Ireland, and landed on the 7th of October 1558 at Dublin. Then coming to the castle, the Lord Fitz-Walters being lord-deputy, sent for him to come before him and the privy-council; who, coming in, after he had made a speech relating upon what account he came over, he presents the box unto the lord-deputy; who causing it to be opened, that the secretary might read the commission, there was nothing save a pack of cards with the knave of clubs uppermost; which not only startled the lord-deputy and council, but the Doctor, who assured them he had a commission, but knew not how it was gone. Then the lord-deputy made answer: Let us have another commission, and we will shuffle the cards in the meanwhile. The Doctor being troubled in his mind, went away, and returned into England, and coming to the court obtained another commission; but staying for a wind on the water-side, news came to him that the queen was dead: and thus God preserved the Protestants of Ireland." Queen Elizabeth was so delighted with this story, which was related to her by lord Fitz-Walter on his return to England, that she sent for Elizabeth Edmonds, whose husband's name was *Mattershad*, and gave her a pension of 40 l. during her life.

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In Scotland, the seeds of reformation were very early sown, by several noblemen who had resided in Germany during the religious disputes there. But for many years it was suppressed by the power of the pope, seconded by inhuman laws and barbarous executions. The most eminent opposer of the Papal jurisdiction was John Knox, a disciple of Calvin, a man of great zeal and invincible fortitude. On all occasions he raised the drooping spirits of the reformers, and encouraged them to go on with their work notwithstanding the opposition and treachery of the queen-regent; till at last, in 1561, by the assistance of an English army sent by Elizabeth, Popery was in a manner totally extirpated throughout the kingdom. From this period the form of doctrine, worship, and discipline established by Calvin at Geneva, has had the ascendancy in Scotland. But for an account of the difficulties which the Scottish reformers had to struggle with, and the manner in which these were overcome, &c. see SCOTLAND.

For further information on the subject of the reformation in general, we refer our readers to the works of Burnet and Brandt, to Beaufobre's *Histoire de la Reformation dans l'Empire, et les Etats de la Confession*

d'Augsbourg depuis 1517—1530, in 4 vols 8vo, Berlin 1785, and Mosheim's Ecclesiastical History. See also Sleidan *De Statu Religionis & Reipublice Carolo V.*; *Casaris Commentarii*; and Father Paul's History of the Council of Trent.

Refraction
Refuge.

REFRACTION, in general, is the deviation of a moving body from its direct course, occasioned by the different density of the medium in which it moves; or it is a change of direction occasioned by a body's falling obliquely out of one medium into another. The word is chiefly made use of with regard to the rays of light. See OPTICS (Index) at *Refraction*.

REFRANGIBILITY OF LIGHT, the disposition of rays to be refracted. The term is chiefly applied to the disposition of rays to produce different colours, according to their different degrees of refrangibility. See CHROMATICS and OPTICS *passim*.

REFRIGERATIVE, in medicine, a remedy which refreshes the inward parts by cooling them; as clysters, ptisans, &c.

REFRIGERATORY, in chemistry, a vessel filled with cold water, through which the worm passes in distillations; the use of which is to condense the vapours as they pass through the worm.

CITIES OF REFUGE, were places provided as *Asyla*, for such as against their will should happen to kill a man. Of these cities there were three on each side Jordan: on this side were Kedesh of Naphtali, Hebron, and Schechem; beyond Jordan were Bezer, Golan, and Ramoth-Gilead. When any of the Hebrews, or strangers that dwelt in their country, happened to spill the blood of a man, they might retire thither to be out of the reach of the violent attempts of the relations of the deceased, and to prepare for their defence and justification before the judges. The manslayer underwent two trials: first before the judges of the city of refuge to which he had fled; and secondly before the judges of his own city. If found guilty, he was put to death with all the severity of the law. If he was acquitted, he was not immediately set at liberty; but, to inspire a degree of horror against even involuntary homicide, he was reconducted to the place of refuge, and obliged to continue there in a sort of banishment till the death of the high-priest. If, before this time, he ventured out, the revenger of blood might freely kill him; but after the high-priest's death he was at liberty to go where he pleased without molestation. It was necessary that the person who fled to any of the cities of refuge should understand some trade or calling, that he might not be burthensome to the inhabitants. The cities of refuge were required to be well supplied with water and necessary provisions. They were also to be of easy access, to have good roads leading to them, with commodious bridges where there was occasion. The width of the roads was to be 32 cubits or 48 feet at least. It was further required, that at all cross-ways direction-posts should be erected, with an inscription pointing out the road to the cities of refuge. The 15th of Adar, which answers to our February moon, was appointed for the city magistrates to see that the roads were in good condition. No person in any of these cities was allowed to make weapons, lest the relations of the deceased should be furnished with the means of gratifying their revenge. Deut. xix. 3. iv. 41. 43.; Josh. xx. 7. Three other cities of refuge were conditionally promised, but never granted. See ASYLUM.

REGU-

Refugees
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Regata.

REFUGEES, a term at first applied to the French Protestants, who, by the revocation of the edict of Nantz, were constrained to fly from persecution, and take refuge in foreign countries. Since that time, however, it has been extended to all such as leave their country in times of distress; and hence, since the revolt of the British colonies in America, we have frequently heard of *American refugees*.

REGALE, a magnificent entertainment or treat, given to ambassadors and other persons of distinction, to entertain or do them honour.

It is usual in Italy, at the arrival of a traveller of eminence, to send him a regale, that is, a present of sweetmeats, fruits, &c. by way of refreshment.

REGALIA, in law, the rights and prerogatives of a king. See **PREROGATIVE**.

Regalia is also used for the apparatus of a coronation; as the crown, the sceptre with the cross, that with the dove, St Edward's staff, the globe, and the orb with the cross, four several swords, &c.—The regalia of Scotland were deposited in the castle of Edinburgh in the year 1707, in what is called the *Jewel Office*. This room was lately opened by some commissioners appointed by the king, when the large chest in which it is supposed they were placed was found; but as it has not, that we have heard of, been opened, it is impossible to say whether they be there or not. It is very generally thought they were carried to the Tower of London in the reign of Queen Anne; and a crown is there shewn which is called the Scotch crown. We do not believe, however, that that is the real crown of Scotland; and think it probable that the Scotch regalia are in the chest which was lately found. If they are not there, they must have been taken away by stealth, and either destroyed or melted down, for we do not believe that they are in the Tower of London.

LORD of REGALITY, in Scots law. See **LAW**, n° clviii. 4.

COURT of REGARD. See *FOREST-COURTS*.

REGARDANT, in heraldry, signifies looking behind; and it is used for a lion, or other beast, with his face turned towards his tail.

REGARDER, an ancient officer of the king's forest, sworn to make the regard of the forest every year; that is, to take a view of its limits, to inquire into all offences and defaults committed by the foresters within the forest, and to observe whether all the officers executed their respective duties. See *FOREST-LAWS*.

REGATA, or **REGATTA**, a species of amusement peculiar to the republic of Venice. This spectacle has the power of exciting the greatest emotions of the heart, admiration, enthusiasm, a sense of glory, and the whole train of our best feelings. The grand regata is only exhibited on particular occasions, as the visits of foreign princes and kings at Venice.

It is difficult to give a just idea of the ardour that the notice of a *regata* spreads among all classes of the inhabitants of Venice. Proud of the exclusive privilege of giving such a spectacle, through the wonderful local circumstances of their city, they are highly delighted with making preparations a long time before, in order to contribute all they can towards the perfection and enjoyment of the spectacle. A thousand interests are formed and augmented every day; parties in favour of the different competitors who are known; the protection of young

noblemen given to the gondoliers in their service; the desire of honours and rewards in the aspirants; and, in the midst of all this, that ingenious national industry, which awakes the Venetians from their habitual indolence, to derive advantage from the business and agitation of the moment: all these circumstances united give to the numerous inhabitants of this lively city a degree of spirit and animation which render it during that time a delightful abode in the eyes of the philosopher and the stranger. Crowds of people flock from the adjacent parts, and travellers joyfully repair to this scene of gaiety and pleasure.

Although it is allowable for any man to go and inscribe his name in the list of combatants until the fixed number is complete, it will not be amiss to remark one thing, which has relation to more ancient times. The state of a gondolier * is of much consideration among the people; which is very natural, that having been the primitive condition of the inhabitants of this country. But, besides this general consideration, there are among them some families truly distinguished and respected by their equals, whose antiquity is acknowledged, and who, on account of a succession of virtuous men, able in their profession, and honoured for the prizes they have carried off in these contests, form the body of noble gondoliers; often more worthy of that title than the higher order of nobility, who only derive their honours from the merit of their ancestors, or from their own riches. The consideration for those families is carried so far, that, in the disputes frequently arising among the gondoliers in their ordinary passage of the canals, we sometimes see a quarrel instantly made up, by the simple interposition of a third person, who has chanced to be of this reverend body. They are rigid with respect to misalliances in their families, and they endeavour reciprocally to give and take their wives among those of their own rank. But we must remark here, with pleasure, that these distinctions infer no inequality of condition, nor admit any oppression of inferiors, being founded solely on laudable and virtuous opinions. Distinctions derived from fortune only, are those which always outrage nature, and often virtue.

In general, the competitors at the great regatas are chosen from among these families of reputation. As soon as they are fixed upon for this exploit, they spend the intermediate time in preparing themselves for it, by a daily assiduous and fatiguing exercise. If they are in service, their masters during that time not only give them their liberty, but also augment their wages. This custom would seem to indicate, that they look upon them as persons consecrated to the honour of the nation, and under a sort of obligation to contribute to its glory.

At last the great day arrives. Their relations assemble together: they encourage the heroes, by calling to their minds the records of their families; the women present the oar, beseeching them, in an epic tone, to remember that they are the sons of famous men, whose steps they will be expected to follow: this they do with as much solemnity as the Spartan women presented the shield to their sons, bidding them either return with or upon it. Religion, as practised among the lower class of people, has its share in the preparations for this enterprize. They cause masses to be said; they make vows to some particular church; and they arm their boats for the contest with the images of those saints who are most in vogue. Sorcerers are not forgotten

Regata.

* See *Canals*.

Regata.

upon this occasion. For gondoliers who have lost the race often declare, that witchcraft had been practised against them, or certainly they must have won the day. Such a supposition prevents a poor fellow from thinking ill of himself; an opinion that might be favourable to him another time.

The course is about four miles. The boats start from a certain place, run through the great winding canal, which divides the town into two parts, turn round a picket, and, coming back the same way, go and seize the prize, which is fixed at the acutest angle of the great canal, on the convex side, so that the point of sight may be the more extended, and the prize seized in the sight of the spectators on both sides.

According to the number of competitors, different races are performed in different sorts of boats; some with one oar and others with two. The prizes proposed are four, indicated by four flags of different colours, with the different value of the prizes marked upon them.—These flags, public and glorious monuments, are the prizes to which the competitors particularly aspire. But the government always adds to each a genteel sum of money; besides that the conquerors, immediately after the victory, are surrounded by all the *beau monde*, who congratulate and make them presents; after which they go, bearing their honourable trophy in their hand, down the whole length of the canal, and receive the applause of innumerable spectators.

This grand canal, ever striking by the singularity and beauty of the buildings which border it, is, upon these occasions, covered with an infinity of spectators, in all sorts of barges, boats, and gondolas. The element on which they move is scarcely seen; but the noise of oars, the agitation of arms and bodies in perpetual motion, indicate the spectacle to be upon the water. At certain distances, on each side of the shore, are erected little amphitheatres and scaffoldings, where are placed bands of music; the harmonious sound of which predominates now and then over the buzzing noise of the people. Some days before a *regata*, one may see on the great canal many boats for pleasure and entertainment. The young noble, the citizen, the rich artizan, mounts a long boat of six or eight oars; his gondoliers decorated with rich and singular dresses, and the vessel itself adorned with various stuffs. Among the nobles there are always a number who are at a considerable expence in these decorations; and at the *regata* itself exhibit on the water personages of mythologic story, with the heroes of antiquity in their train, or amuse themselves with representing the costume of different nations: in short, people contribute with a mad sort of magnificence, from all quarters, to this masquerade, the favourite diversion of the Venetians. But these great machines, not being the less in motion on account of their ornaments, are not merely destined to grace the show: they are employed at the *regata*, at every moment, to range the people, to protect the course, and to keep the avenue open and clear to the goal. The nobility, kneeling upon cushions at the prow of their vessels, are attentive to these matters, and announce their orders to the most restive, by darting at them little gilded or silvered balls, by means of certain bows, with which they are furnished on this occasion. And this is the only appearance of coercion in the Venetian police on these days of the greatest tumult: nor is there to be seen, in any part of the city, a body of

guards or patrol, nor even a gun or a halbert. The mildness of the nation, its gaiety, its education in the habit of believing that the government is ever awake, that it knows and sees every thing; its respectful attachment to the body of patricians; the sole aspect of certain officers of the police in their robes, dispersed in different places, at once operate and explain that tranquillity, that security, which we see in the midst of the greatest confusion, and that surprising docility in so lively and fiery a people. Regattas have been attempted on the river Thames, but they were but humble imitations of the Venetian amusement.

REGEL, or RIGEL, a fixed star of the first magnitude, in Orion's left foot.

REGENERATION, in theology, the act of being born again by a spiritual birth, or the change of heart and life experienced by a person who forsakes a course of vice, and sincerely embraces a life of virtue and piety.

REGENSBURG, or RATISBON. See RATISBON.

REGENT, one who governs a kingdom during the minority or absence of the king.

In France, the queen-mother had the regency of the kingdom during the minority of the king, under the title of *queen-regent*.

In England, the methods of appointing this guardian or regent have been so various, and the duration of his power so uncertain, that from hence alone it may be collected that his office is unknown to the common law; and therefore (as Sir Edward Coke says, 4 Inst. 58.) the surest way is to have him made by authority of the great council in parliament. The earl of Pembroke by his own authority assumed in very troublesome times the regency of Henry III. who was then only nine years old; but was declared of full age by the pope at 17, confirmed the great charter at 18, and took upon him the administration of the government at 20. A guardian and councils of regency were named for Edward III. by the parliament, which deposed his father; the young king being then 15, and not assuming the government till three years after. When Richard II. succeeded at the age of 11, the duke of Lancaster took upon him the management of the kingdom till the parliament met, which appointed a nominal council to assist him. Henry V. on his death-bed named a regent and a guardian for his infant son Henry VI. then nine months old: but the parliament altered his disposition, and appointed a protector and council, with a special limited authority. Both these princes remained in a state of pupilage till the age of 23. Edward V. at the age of 13, was recommended by his father to the care of the duke of Gloucester; who was declared protector by the privy-council. The statutes 25 Hen. VIII. c. 12. and 28 Hen. VIII. c. 7. provided, that the successor, if a male and under 18, or if a female and under 16, should be till such age in the governance of his or her natural mother, (if approved by the king), and such other counsellors as his majesty should by will or otherwise appoint: and he accordingly appointed his 16 executors to have the government of his son Edward VI. and the kingdom, which executors elected the earl of Hartford protector. The statutes 24 Geo. II. c. 24. in case the crown should descend to any of the children of Frederick late prince of Wales under the age of 18, appointed the princess dowager;—and that of 5 Geo. III. c. 27. in case of a like descent to any of his present majesty's children, empowers the king to name either the

Regent
Regents

queen

Regent,
Reggio.

queen or prince's dowager, or any descendant of king George II. residing in this kingdom;—to be guardian and regent till the successor attains such age, assisted by a council of regency; the powers of them all being expressly defined and set down in the several acts.

REGENT also signifies a professor of arts and sciences in a college, having pupils under his care; but it is generally restrained to the lower classes, as to rhetoric, logic, &c. those of philosophy being called *professors*. In the English universities it is applied to Masters of Arts under five years standing, and to Doctors under two, as non-regent is to those above that standing.

Winburne's
Travels in
the Two
Sicilies.

REGGIO, an ancient and considerable town of Italy, in the kingdom of Naples, and in the Farther Calabria, with an archbishop's see, and a woollen manufactory. It is seated in a delightful country, which produces plenty of oranges, and all their kindred fruits. The olives are exquisite, and high-flavoured. The town, however, can boast of neither beautiful buildings nor strong fortifications. Of its edifices the Gothic cathedral is the only striking one, but it affords nothing curious in architecture. The citadel is far from formidable, according to the present system of tactics; nor could the city walls make a long resistance against any enemy but Barbary corsairs; and even these they have not always been able to repel, for in 1543 it was laid in ashes by Barbarossa. Mustapha sacked it 15 years after, and the desolation was renewed in 1593 by another set of Turks. Its exposed situation, on the very threshold of Italy, and fronting Sicily, has from the earliest period rendered it liable to attacks and devastation. The Chalcidians seized upon it, or, according to the usual Greek phrase, founded it, and called the colony *Rhegion*, from a word that means a break or crack, alluding to its position on the point where Sicily broke off from the continent. Anaxilas oppressed its liberties. Dionysius the Elder took it, and put many of the principal citizens to death, in revenge for their having refused his alliance. The Campanian legion, sent to protect the Rhegians, turned its sword against them, massacred many inhabitants, and tyrannized over the remainder, till the Roman senate thought proper to punish these traitors with exemplary severity, though at the same time it entered into league with the revolted garrison of Messina. This union with a set of villains, guilty of the same crime, proved that no love of justice, but political reasons alone, drew down its vengeance on the Campanians.—It is about 12 miles S. E. of Messina, and 190 S. by E. of Naples. E. Long. 16. 0. N. Lat. 38. 4.

REGGIO, an ancient, handsome, and strong town of Italy, in the duchy of Modena, with a strong citadel, and a bishop's see. It has been ruined several times by the Goths, and other nations. In the cathedral are paintings by the greatest masters; and in the square is the statue of Brennus, chief of the Gauls. The inhabitants are about 22,000, who carry on a great trade in silk. It was taken by prince Eugene in 1706, and by the king of Sardinia in 1742. It is seated in a fertile country to the south of the Apennines, and to the north of a spacious plain, 15 miles north-west of Modena, and 80 south-east of Milan. E. Long. 11. 5. N. Lat. 44. 43.—The duchy of this name is bounded on the west by that of Modena, and produces a great deal of silk, and belongs to the duke of Modena, except the marquise of St. Martin, which belongs to a prince of that name.

REGIAM MAJESTATEM. See LAW, n° clv. 3.
REGICIDE, KING-KILLER, a word chiefly used with us in speaking of the persons concerned in the trial, condemnation, and execution, of king Charles I.

Regiam
||
Regiment.

REGIFUGIUM was a feast celebrated at Rome on the 24th of February, in commemoration of the expulsion of *Tarquinius Superbus*, and the abolition of regal power. It was also performed on the 26th of May, when the king of the sacrifices, or *Rex Sacrorum*, offered bean flour and bacon, in the place where the assemblies were held. The sacrifice being over, the people hastened away with all speed, to denote the precipitate flight of King Tarquin.

REGIMEN, the regulation of diet, and, in a more general sense, of all the non-naturals, with a view to preserve or restore health. See ABSTINENCE, ALIMENT, FOOD, DIET, DRINK, and MEDICINE.

The vicissitude of exercise and rest forms also a necessary part of regimen. See EXERCISE.

It is beneficial to be at rest now and then, but more so frequently to use exercise; because inaction renders the body weak and listless, and labour strengthens it. But a medium is to be observed in all things, and too much fatigue is to be avoided: for frequent and violent exercise overpowers the natural strength, and wastes the body; but moderate exercise ought always to be used before meals. Now, of all kinds of exercise, riding on horseback is the most convenient: or if the person be too weak to bear it, riding in a coach, or at least in a litter: next follow fencing, playing at ball, running, walking. But it is one of the inconveniences of old age, that there is seldom sufficient strength for using bodily exercise, though it be extremely requisite for health: wherefore frictions with the flesh-brush are necessary at this time of life; which should be performed by the person himself, if possible; if not, by his servants.

Sleep is the sweet soother of cares, and restorer of strength; as it repairs and replaces the wastes that are made by the labours and exercises of the day. But excessive sleep has its inconveniences; for it blunts the senses, and renders them less fit for the duties of life. The proper time for sleep is the night, when darkness and silence invite and bring it on: day-sleep is less refreshing; which rule if it be proper for the multitude to observe, much more is the observance of it necessary for persons addicted to literary studies, whose minds and bodies are more susceptible of injuries.

REGIMEN, in grammar, that part of syntax, or construction, which regulates the dependency of words, and the alterations which one occasions in another.

REGIMEN for Seamen. See SEAMEN.

REGIMENT, is a body of men, either horse, foot, or artillery, commanded by a colonel, lieutenant-colonel, and major. Each regiment of foot is divided into companies; but the number of companies differs: though in Britain our regiments are generally 10 companies, one of which is always grenadiers, exclusive of the two independent companies. Regiments of horse are commonly six troops, but there are some of nine. Dragoon regiments are generally in war-time 8 troops, and in time of peace but 6. Each regiment has a chaplain, quarter-master, adjutant, and surgeon. Some German regiments consist of 2000 foot; and the regiment of Picardy in France consisted of 6000, being 120 companies, of 50 men in each company.

Regi-

Regiment-
tanus
||
Register.

Regiments were first formed in France in the year 1558, and in England in the year 1660.

REGIOMONTANUS. See MULLER.

REGION, in geography, a large extent of land, inhabited by many people of the same nation, and inclosed within certain limits or bounds.

The modern astronomers divide the moon into several regions, or large tracts of land, to each of which they give its proper name.

REGION, in physiology, is taken for a division of our atmosphere, which is divided into the upper, middle, and lower regions.

The upper region commences from the tops of the mountains, and reaches to the utmost limits of the atmosphere. In this region reign a perpetual, equable, calmness, clearness, and serenity. The middle region is that in which the clouds reside, and where meteors are formed, extending from the extremity of the lowest to the tops of the highest mountains. The lowest region is that in which we breathe, which is bounded by the reflection of the sun's rays; or by the height to which they rebound from the earth. See ATMOSPHERE and AIR.

Æthereal REGION, in cosmography, is the whole extent of the universe, in which is included all the heavenly bodies, and even the orb of the fixed stars.

Elementary REGION, according to the Aristotelians, is a sphere terminated by the concavity of the moon's orb, comprehending the atmosphere of the earth.

REGION, in anatomy, a division of the human body, otherwise called *cavity*, of which anatomists reckon three, viz. the upper region, or that of the head; the middle region, that of the thorax or breast; and the lower, the abdomen, or belly. See ANATOMY.

REGION, in ancient Rome, was a part or division of the city. The regions were only four in number, till Augustus Cæsar's time, who divided the city into fourteen; over each of which he settled two surveyors, called *curatores viarum*, who were appointed annually, and took their divisions by lot. These fourteen regions contained four hundred and twenty-four streets, thirty-one of which were called *greater or royal streets*, which began at the gilt pillar that stood at the entry of the open place, in the middle of the city. The extent of these divisions varied greatly, some being from 12000 or 13000 to 33000 feet or upwards in circumference. Authors, however, are not agreed as to the exact limits of each. The *curatores viarum* wore the purple, had each two lictors in their proper divisions, had slaves under them to take care of fires, that happened to break out. They had also two officers, called *denunciatores*, in each region, to give account of any disorders. Four *vico-magistri* also were appointed in each street, who took care of the streets allotted them, and carried the orders of the city to each citizen.

REGISTER, a public book, in which are entered and recorded memoirs, acts, and minutes, to be had recourse to occasionally for knowing and proving matters of fact. Of these there are several kinds; as,

1. Register of deeds in Yorkshire and Middlesex, in which are registered all deeds, conveyances, wills, &c. that affect any lands or tenements in those counties, which are otherwise void against any subsequent purchasers or mortgagees, &c. but this does not extend to any copyhold estate, nor to leases at a rack-rent, or

where they do not exceed 21 years. The registered memorials must be ingrossed on parchment, under the hand and seal of some of the granters or grantees, attested by witnesses who are to prove the signing or sealing of them and the execution of the deed. But these registers, which are confined to two counties, are in Scotland general, by which the laws of North Britain are rendered very easy and regular. Of these there are two kinds; the one general, fixed at Edinburgh, under the direction of the lord-register; and the other is kept in the several shires, stewartries, and regalties, the clerks of which are obliged to transmit the registers of their respective courts to the general register.

2. Parish-registers are books in which are registered the baptisms, marriages, and burials, of each parish.

REGISTERS were kept both at Athens and Rome, in which were inserted the names of such children as were to be brought up, as soon as they were born. Marcus Aurelius required all free persons to give in accounts of their children, within 30 days after the birth, to the treasurer of the empire, in order to their being deposited in the temple of Saturn, where the public acts were kept. Officers were also appointed as public registers in the provinces, that recourse might be had to their lists of names, for settling disputes, or proving any person's freedom.

REGISTER Ships, in commerce, are vessels which obtain a permission either from the king of Spain, or the council of the Indies, to traffic in the ports of the Spanish West Indies; which are thus called, from their being registered before they set sail from Cadiz for Buenos Ayres.

REGISTERS, in chemistry, are holes, or chinks with stopples, contrived in the sides of furnaces, to regulate the fire; that is, to make the heat more intense or remiss, by opening them to let in the air, or keeping them close to exclude it. There are also registers in the steam-engine. See STEAM-ENGINE.

REGISTRAR, an officer in the English universities, who has the keeping of all the public records.

REGIUM, *REGIUM Lepidi*, *Regium Lepidum*, (anc. geog.); a town of Cisalpine Gaul, on the Via Æmilia, so called from Æmilius Lepidus, who was consul with C. Flaminius; but whence it was surnamed *Regium* is altogether uncertain. Tacitus relates, that at the battle of Bedriacum, a bird of an unusual size was seen perching in a famous grove near *Regium Lepidum*. Now called *Reggio*, a city of Modena. E. Long. 11. 0. N. Lat. 44. 45. See REGGIO.

REGNARD (John Francis), one of the best French comic writers after Moliere, was born at Paris in 1647. He had scarcely finished his studies, when an ardent passion for travelling carried him over the greatest part of Europe. When he settled in his own country, he was made a treasurer of France, and lieutenant of the waters and forests: he wrote a great many comedies; and, though naturally of a gay genius, died of chagrin in the 52d year of his age. His works, consisting of comedies and travels, were printed at Rouen, in 5 vols 12mo, 1732.

REGNIER (Mathurin), the first French poet who succeeded in satire, was born at Chartres in 1573. He was brought up to the church, a place for which his debaucheries rendered him very unsuitable; and these by his own confession were so excessive, that at 30 he had all

Registers
||
Regnier.

Regnum
Regul-
bium.

all the infirmities of age. Yet he obtained a canonry in the church of Chartres, with other benefices; and died in 1613. There is a neat Elzevir edition of his works, 12mo, 1652, Leyden; but the most elegant is that with notes by M. Broffette, 4to, 1729, London.

REGNIER DES MARETS (Seraphin), a French poet, born at Paris in 1632. He distinguished himself early by his poetical talents, and in 1684 was made perpetual secretary to the French academy on the death of Mazeray: it was he who drew up all those papers in the name of the academy against Furetiere: the king gave him the priory of Grammont, and he had also an abbey. He died in 1713, and his works are, French, Italian, Spanish, and Latin poems, 2 vols; a French grammar; and an Italian translation of Anacreon's odes, with some other translations.

REGNUM (anc. geog.), a town of the Regni, a people in Britain, next the Cantii, now Surry, Sussex, and the coast of Hampshire, (Camden); a town situated, by the Itinerary numbers, on the confines of the Belgæ, in a place now called *Ringwood*, in Hampshire, on the rivulet Avon, running down from Salisbury, and about ten miles or more distant from the sea.

REGRATOR, signifies him who buys and sells any wares or victuals in the *same* market or fair: and regrators are particularly described to be those who buy, or get into their hands, in fairs or markets, any grain, fish, butter, cheese, sheep, lambs, calves, swine, pigs, geese, capons, hens, chickens, pigeons, conies, or other dead victuals whatsoever, brought to a fair or market to be sold there, and do sell the same again in the same fair, market, or place, or in some other within four miles thereof.

Regrating is a kind of *huckstry*, by which victuals are made dearer; for every seller will gain something, which must of consequence enhance the price. And, in ancient times, both the engrosser and regrator were comprehended under the word *foresaller*. Regrators are punishable by loss and forfeiture of goods, and imprisonment, according to the first, second, or third offence, &c.

REGENSBURG, a handsome, though small town of Switzerland, in the canton of Zurich, and capital of a bailiwick of the same name, with a strong castle; seated on a hill, which is part of Mount Jura. There is a well sunk through a rock, 36 fathoms deep.

REGULAR, denotes any thing that is agreeable to the rules of art: thus we say, a regular building, verb, &c.

A regular figure, in geometry, is one whose sides, and consequently angles, are equal; and a regular figure with three or four sides is commonly termed an *equilateral triangle* or *square*, as all others with more sides are called *regular polygons*.

REGULAR, in a monastery, a person who has taken the vows; because he is bound to observe the rules of the order he has embraced.

REGULATION, a rule or order prescribed by a superior, for the proper management of some affair.

REGULATOR of a WATCH, the small spring belonging to the balance; serving to adjust its motions, and make it go faster or slower. See WATCH.

REGULBIUM, or REGULVIUM, (Notitia Imperii); mentioned nowhere else more early: a town of the Cantii, in Britain. Now Reculver, a village on the

coast, near the island Thanet, towards the Thames, to the north of Canterbury, (Camden).

REGULUS (M. Attilius), a consul during the first Punic war. He reduced Brundisium, and in his second consulship he took 64 and sunk 30 galleys of the Carthaginian fleet, on the coasts of Sicily. Afterwards he landed in Africa; and so rapid was his success, that in a short time he made himself master of about 200 places of consequence on the coast. The Carthaginians sued for peace, but the conqueror refused to grant it; and soon after he was defeated in a battle by Xanthippus, and 30,000 of his men were left on the field of battle, and 15,000 taken prisoners. Regulus was in the number of the captives, and he was carried in triumph to Carthage. He was sent by the enemy to Rome, to propose an accommodation and an exchange of prisoners; and if his commission was unsuccessful, he was bound by the most solemn oaths to return to Carthage without delay. When he came to Rome, Regulus dissuaded his countrymen from accepting the terms which the enemy proposed; and when his opinion had had due influence on the senate, Regulus retired to Carthage agreeable to his engagements. The Carthaginians were told that their offers of peace had been rejected at Rome by the means of Regulus; and therefore they prepared to punish him with the greatest severity. His eye-brows were cut, and he was exposed for some days to the excessive heat of the meridian sun, and afterwards confined in a barrel, whose sides were everywhere filled with large iron spikes, till he died in the greatest agonies. His sufferings were heard of at Rome; and the senate permitted his widow to inflict whatever punishment she pleased on some of the most illustrious captives of Carthage which were in their hands. She confined them also in presses filled with sharp iron points; and was so exquisite in her cruelty, that the senate interfered, and stopped the barbarity of her punishment. Regulus died about 251 years before Christ.—Meramius, a Roman, made governor of Greece by Caligula. While Regulus was in his province, the emperor wished to bring the celebrated statue of Jupiter Olympius by Phidias to Rome, but this was supernaturally prevented; and according to ancient authors, the ship which was to convey it was destroyed by lightning, and the workmen who attempted to remove the statue were terrified away by sudden noises.—A man who condemned Sejanus.—Roscius, a man who held the consulship but for one day, in the reign of Vitellius.

REGULUS, in chemistry, an imperfect metallic substance that falls to the bottom of the crucible, in the melting of ores or impure metallic substances. It is the finest or purest part of the metal; and, according to the alchemists, is denominated *regulus*, or *little king*, as being the first-born of the royal metallic blood. According to them, it is really a son, but not a perfect man; i. e. not yet a perfect metal, for want of time and proper nourishment. To procure the regulus of mercurial parts of metals, &c. flux powders are commonly used; as nitre, tartar, &c. which purge the sulphureous part adhering to the metal, by attracting and absorbing it to themselves.

REGULUS of Antimony. See CHEMISTRY, n° 1252—1257; and see *Index* there, at *Antimony*.

REGULUS of Arsenic. See CHEMISTRY, n° 1267, &c. and 1285—1294. The ancient process for making regulus

Regulus.

Regulus.

Regulus of arsenic consisted in mixing four parts of arsenic with two parts of black flux, one part of borax, and one part of filings of iron or of copper, and quickly fusing the mixture in a crucible. After the operation is finished, a regulus of arsenic will be found at the bottom of the crucible of a white livid colour, and of considerable solidity. The iron and copper employed in this process are not intended, as in the operation for the martial regulus of antimony, to precipitate the arsenic, and to separate it from sulphur or any other substance; for the white arsenic is pure, and nothing is to be taken from it; but, on the contrary, the inflammable principle is to be added to reduce it to a regulus. The true use of these metals in the present operation is to unite with the regulus of arsenic, to give it more body, and to prevent its entire dissipation in vapours. Hence the addition of iron, while it procures these advantages, has the inconvenience of altering the purity of the regulus: for the metallic substance obtained is a regulus of arsenic alloyed with iron. It may, however, be purified from the iron by sublimation in a close vessel; by which operation the regulified arsenical part, which is very volatile, is sublimed to the top of the vessel, and is separated from the iron, which being of a fixed nature remains at the bottom. We are not, however, very certain, that in this kind of rectification the regulus of arsenic does not carry along with it a certain quantity of iron; for, in general, a volatile substance raises along with it, in sublimation, a part of any fixed matter with which it happened to be united.

Mr Brandt proposes another method, which we believe is preferable to that described. He directs that white arsenic should be mixed with soap. Instead of the soap, olive-oil may be used, which has been found to succeed well. The mixture is to be put into a retort or glass matrass, and to be distilled or sublimed with fire, at first very moderate, and only sufficient to raise the oil. As the oils, which are not volatile, cannot be distilled but by a heat sufficient to burn and decompose them, the oil therefore which is mixed with the arsenic undergoes these alterations, and after having penetrated the arsenic thoroughly is reduced to a coal. When no more oily vapours rise, we may then know that the oil is reduced to coal. Then the fire must be increased, and the metallised arsenic will be soon sublimed to the upper part of the vessel, in the inside of which it will form a metallic crust. When no more sublimes, the vessel is to be broken, and the adhering crust of regulus of arsenic is to be separated. The regulus obtained by this first operation is not generally perfect, or not entirely so, as a part of it is always overcharged with fuliginous matter, and another part has not enough of phlogiston; which latter part adheres to the inner surface of the crust, and forms grey or brown crystals. This sublimate must then be mixed with a less quantity of oil, and sublimed a second time like the first; and even, to obtain as good regulus as may be made, a third sublimation in a close vessel, and without oil, is necessary. During this operation, the oil which rises is more fetid than any other empyreumatic oil, and is almost insupportable. This smell certainly proceeds from the arsenic; the smell of which is exceedingly strong and disagreeable when heated.

Regulus of arsenic made by the method we have described, and which we consider as the only one which

is pure, has all the properties of a femimetal. It has metallic gravity, opacity, and lustre. Its colour is white and livid, it tarnishes in the air, is very brittle, but much more volatile than any other femimetal. It easily loses its inflammable principle, when sublimed in vessels into which the air has access; the sublimate having the appearance of grey flowers, which by repeated sublimations become entirely white, and similar to white crystalline arsenic. When regulus of arsenic is heated quickly and strongly in open air, as under a muffle, it burns with a white or bluish flame, and dissipates in a thick fume, which has a very fetid smell, like that of garlic.

Regulus of arsenic may be combined with acids and most metals. See ARSENIC, n° 17. We shall only farther observe here, that, according to Mr Brandt, in the Swedish Memoirs, the regulus of arsenic cannot be united with mercury. Although the phenomena exhibited by white arsenic and regulus of arsenic in solutions and allays are probably the same, yet an accurate comparison of these would deserve notice, especially if the regulus employed were well made; for some difference must proceed from the greater or less quantity of what in the old chemistry is called phlogiston with which it is united. See CHEMISTRY, n° 1288, &c.

Regulus of Cobalt, is a femimetal lately discovered, and not yet perfectly well known. It receives its name from cobalt, because it can only be extracted from the mineral properly so called. The process by which this femimetal is obtained, is similar to those generally used for the extraction of metals from their ores. The cobalt must be thoroughly torrifed, to deprive it of all the sulphur and arsenic it contains; and the unmetallic earthy and stony matters must be separated by washing. The cobalt thus prepared is then to be mixed with double or triple its quantity of black flux, and a little decrepitated sea-salt; and must be fused either in a forge or in a hot furnace, for this ore is very difficult of fusion. When the fusion has been well made, we find upon breaking the crucible, after it has cooled, a metallic regulus covered with a scoria of a deep blue colour. The regulus is of a white metallic colour. The surface of its fracture is close and small-grained. The femimetal is hard, but brittle. When the fusion has been well made, its surface appears to be carved with many convex threads, which cross each other diversely. As almost all cobalts contain also bismuth, and even as much as of the regulus itself, this bismuth is reduced by the same operation, and precipitated in the same manner, as the regulus of cobalt; for although these two metals are frequently mixed in the same mineral, that is, in cobalt, they are incapable of uniting together, and are always found distinct and separate from one another when they are melted together. At the bottom of the crucible then we find both regulus of cobalt and bismuth. The latter, having a greater specific gravity, is found under the former. They may be separated from each other by the blow of a hammer. Bismuth may be easily distinguished from the regulus of cobalt, not only from its situation in the crucible, but also by the large shining facets which appear in its fracture, and which are very different from the close ash-coloured grain of regulus of cobalt.

This femimetal is more difficult of fusion than any other;

Regulus.

Regulus
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Reichen-
berg.

other; is less easily calcinable, and much less volatile. Its calx is grey, and more or less brown; and when fused with vitrifiable matters, it changes into a beautiful blue glass called *smalt*. This calx, then, is one of those which preserve always a part of their inflammable principle. It is soluble in acids, as the regulus is. This regulus is soluble in vitriolic, marine, nitrous acids, and in aqua-regia, to all which it communicates colours. The solution in vitriolic acid is reddish; the solution in marine acid is of a fine bluish-green when hot, and its colour is almost totally effaced when cold, but is easily recoverable by heating it, without being obliged to uncork the bottle containing it. This solution of the calx of regulus of cobalt is the basis of the sympathetic ink; for without marine acid this ink cannot be made. All the solutions of regulus of cobalt may be precipitated by alkalis; and these precipitates are blue, which colour they retain when vitrified with the strongest fire.

Not only sympathetic ink, but also regulus of cobalt, may be made from the saffre commonly sold; which is nothing else than the calx of regulus of cobalt mixed with more or less pulverised flints. For this purpose we must separate as well as we can the powder of flints from it, by washing, as M. Beaumé does, and then reduce it with black flux and sea-salt. Regulus of cobalt seems incapable of uniting with sulphur; but it easily unites with liver of sulphur; and the union it forms is so intimate, that M. Beaumé could not separate these two substances otherwise than by precipitation with an acid.

Many curious and interesting remarks are still to be discovered concerning this singular semimetal, and we may hope to receive further information from the endeavours of chemists who have undertaken the examination of it. M. Beaumé particularly has made considerable experiments on this subject, part of which he communicates to the public in his Course of Chemistry, and from whom we have borrowed the most of the above observations. See CHEMISTRY, n° 1294, &c.

REHEARSAL, in music and the drama, an essay or experiment of some composition, generally made in private, previous to its representation or performance in public, in order to render the actors and performers more perfect in their parts.

REICHENBERG, in Bohemia, 95 miles west of Prague, 205 north-west of Vienna, N. Lat. 50. 2. E. Long. 12. 25. is only remarkable as the place where the Prussian army defeated the Austrians on the 21st of April 1757. The Austrian army, commanded by Count Königseck, was posted near Reichenberg, and was attacked by the Prussians under the command of the prince of Brunswick-Bevern. The Prussians were 20,000, and the Austrians 28,000: the action began at half after six in the morning, when the Prussian lines were formed, and attacked the Austrian cavalry, which was ranged in three lines of 30 squadrons, and their two wings sustained by the infantry, which was posted among felled trees and intrenchments. The Austrians had a village on their right, and a wood on their left, where they were intrenched. The Prussian dragoons and grenadiers cleared the intrenchment and wood, and entirely routed the Austrian cavalry; at the same time, the redoubts that covered Reichenberg were taken by General Lefewitz; and the Austrians were entirely

defeated. The Prussians had seven officers and 100 men killed; 14 officers and 150 men wounded. The Austrians had 1000 men killed and wounded; 20 of their officers and 400 men taken prisoners. The action ended at eleven.

REIN-DEER, or *Tarandus*. See CERVUS, n° 4.

REINS, in anatomy, the same with KIDNEYS. See ANATOMY, n° 101.

REINS of a *Bridle*, are two long slips of leather, fastened on each side of a curb or snaffle, which the rider holds in his hand, to keep the horse in subjection.

There is also what is called *false reins*; which is a lath of leather, passed sometimes through the arch of the banquet, to bend the horse's neck.

REJOINDER, in law, is the defendant's answer to the plaintiff's replication or reply. Thus, in the court of chancery, the defendant puts in an answer to the plaintiff's bill, which is sometimes also called an *exception*; the plaintiff's answer to that is called a *re-plication*, and the defendant's answer to that a *rejoindre*.

RELAND (Adrian), an eminent Orientalist, born at Ryp, in North Holland, in 1676. During three years study under Surenhusius, he made an uncommon progress in the Hebrew, Syriac, Chaldee, and Arabic languages; and these languages were always his favourite study. In 1701, he was, by the recommendation of King William, appointed professor of Oriental languages and ecclesiastical antiquities in the university of Utrecht; and died of the small-pox in 1718. He was distinguished by his modesty, humanity, and learning; and carried on a correspondence with the most eminent scholars of his time. His principal works are, 1. An excellent description of Palestine. 2. Five dissertations on the Medals of the ancient Hebrews, and several other dissertations on different subjects. 3. An Introduction to the Hebrew Grammar. 4. The Antiquities of the ancient Hebrews. 5. On the Mahometan Religion. These works are all written in Latin.

RELATION, the mutual respect of two things, or what each is with regard to the other. See METAPHYSICS, n° 93, &c. and 128, &c.

RELATION, in geometry. See RATIO.

RELATION, is also used for analogy. See ANALOGY, and METAPHYSICS, p. 529, &c.

RELATIVE, something relating to or respecting another.

RELATIVE, in music. See MODE.

RELATIVE-Terms, in logic, are words which imply relation: such are master and servant, husband and wife, &c.

In grammar, relative words are those which answer to some other word foregoing, called the *antecedent*; such are the relative pronouns *qui, quæ, quod*, &c. and in English, *who, whom, which*, &c. The word answering to these relatives is often understood, as, "I know whom you mean," for "I know the person whom you mean."

RELAXATION, in medicine, the act of loosening or slackening; or the looseness or slackness of the fibres, nerves, muscles, &c.

RELAY, a supply of horses, placed on the road, and appointed to be ready for a traveller to change, in order to make the greater expedition.

RELEASE, in law, is a discharge or conveyance of a man's right in lands or tenements, to another that

Rein-deer
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Rein-deer.

Release
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Relics.
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Comment.

hath some former estate in possession. The words generally used therein are "remised, released, and for ever quit-claimed." And these releases may enure, either, 1. By way of *enlarging an estate*, or *enlarger Pestate*: as, if there be tenant for life or years, remainder to another in fee, and he in remainder releases all his right to the particular tenant and his heirs, this gives him the estate in fee. But in this case the releassee must be in *possession* of some estate, for the release to work upon; for if there be lessee for years, and, before he enters and is in possession, the lessor releases to him all his right in the reversion, such release is void for want of possession in the releassee. 2. By way of *passing an estate*, or *mitten Pestate*: as, when one of two coparceners releaseth all his right to the other, this passeth the fee-simple of the whole. And, in both these cases, there must be a privity of estate between the releffor and releassee; that is, one of their estates must be so related to the other, as to make but one and the same estate in law. 3. By way of *passing a right*, or *mitten le droit*: as if a man be disseised, and releaseth to his disseisor all his right; hereby the disseisor acquires a new right, which changes the quality of his estate, and renders that lawful which before was tortious. 4. By way of *extinguishment*: as if my tenant for life makes a lease to A for life, remainder to B and his heirs, and I release to A; this extinguishes my right to the reversion, and shall enure to the advantage of B's remainder as well as of A's particular estate. 5. By way of *entry and seoffment*: as if there be two joint disseisors, and the disseisee releases to one of them, he shall be sole seised, and shall keep out his former companion; which is the same in effect as if the disseisee had entered, and thereby put an end to the disseisin, and afterwards had enfeoffed one of the disseisors in fee. And hereupon we may observe, that when a man has in himself the possession of lands, he must at the common law convey the freehold by seoffment and livery; which makes a notoriety in the country: but if a man has only a right or a future interest, he may convey that right or interest by a mere release to him that is in possession of the land: for the occupancy of the releassee is a matter of sufficient notoriety already.

RELEVANCY, in Scots law. See LAW, N^o clxxxvi. 48.

RELICS, in the Romish church, the remains of the bodies or clothes of saints or martyrs, and the instruments by which they were put to death, devoutly preserved, in honour to their memory; kissed, revered, and carried in procession.

The respect which was justly due to the martyrs and teachers of the Christian faith, in a few ages increased almost to adoration; and at length adoration was really paid both to departed saints and to relics of holy men or holy things. The abuses of the church of Rome, with respect to relics, are very flagrant and notorious. For such was the rage for them at one time, that, as F. Mabillon a Benedictine justly complains, the altars were loaded with suspected relics; numerous spurious ones being everywhere offered to the piety and devotion of the faithful. He adds, too, that bones are often consecrated, which, so far from belonging to saints, probably do not belong to Christians. From the catacombs numerous relics have been taken, and yet it is

not known who were the persons interred therein. In the 11th century, relics were tried by fire, and those which did not consume were reckoned genuine, and the rest not. Relics were, and still are, preserved on the altars whereon mass is celebrated; a square hole being made in the middle of the altar, big enough to receive the hand, and herein is the relic deposited, being first wrapped in red silk, and inclosed in a leaden box.

The Romanists plead antiquity in behalf of relics: For the Manichees, out of hatred to the flesh, which they considered as an evil principle, refused to honour the relics of saints; which is reckoned a kind of proof that the Catholics did it in the first ages.

We know, indeed, that the touching of linen cloths on relics, from an opinion of some extraordinary virtue derived therefrom, was as ancient as the first ages, there being a hole made in the coffins of the 40 martyrs at Constantinople expressly for this purpose. The honouring the relics of saints, on which the church of Rome afterwards founded her superstitious and lucrative use of them, as objects of devotion, as a kind of charms or amulets, and as instruments of pretended miracles, appears to have originated in a very ancient custom, that prevailed among Christians, of assembling at the cemeteries or burying-places of the martyrs, for the purpose of commemorating them, and of performing divine worship. When the profession of Christianity obtained the protection of the civil government, under Constantine the Great, stately churches were erected over their sepulchres, and their names and memories were treated with every possible token of affection and respect. This reverence, however, gradually exceeded all reasonable bounds; and those prayers and religious services were thought to have a peculiar sanctity and virtue, which were performed over their tombs. Hence the practice which afterwards obtained, of depositing relics of saints and martyrs under the altars in all churches. This practice was then thought of such importance, that St Ambrose would not consecrate a church because it had no relics; and the council of Constantinople in Trullo ordained, that those altars should be demolished under which there were found no relics. The rage of procuring relics for this and other purposes of a similar nature, became so excessive, that in 386 the emperor Theodosius the Great was obliged to pass a law, forbidding the people to dig up the bodies of the martyrs, and to traffic in their relics.

Such was the origin of that respect for sacred relics, which afterwards was perverted into a formal worship of them, and became the occasion of innumerable processions, pilgrimages, and miracles, from which the church of Rome hath derived incredible advantage.— In the end of the ninth century, it was not sufficient to reverence departed saints, and to confide in their intercessions and succours, to clothe them with an imaginary power of healing diseases, working miracles, and delivering from all sorts of calamities and dangers; their bones, their clothes, the apparel and furniture they had possessed during their lives, the very ground which they had touched, or in which their putrified carcases were laid, were treated with a stupid veneration, and supposed to retain the marvellous virtue of healing all disorders both of body and mind, and of defending such as possessed them against all the assaults and devices of the devil.

Relics

Relics.

vil. The consequence of all this was, that every one was eager to provide himself with these salutary remedies; consequently, great numbers undertook fatiguing and perilous voyages, and subjected themselves to all sorts of hardships; while others made use of this delusion to accumulate their riches, and to impose upon the miserable multitude by the most impious and shocking inventions. As the demand for relics was prodigious and universal, the clergy employed the utmost dexterity to satisfy all demands, and were far from being nice in the methods they used for that end. The bodies of the saints were sought by fasting and prayer, instituted by the priest in order to obtain a divine answer and an infallible direction, and this pretended direction never failed to accomplish their desires; the holy carcass was always found, and that always in consequence, as they impiously gave out, of the suggestion and inspiration of God himself. Each discovery of this kind was attended with excessive demonstrations of joy, and animated the zeal of these devout seekers to enrich the church still more and more with this new kind of treasure. Many travelled with this view into the Eastern provinces, and frequented the places which Christ and his disciples had honoured with their presence, that, with the bones and other sacred remains of the first heralds of the gospel, they might comfort dejected minds, calm trembling consciences, save sinking states, and defend their inhabitants from all sorts of calamities. Nor did these pious travellers return home empty; the craft, dexterity, and knavery of the Greeks, found a rich prey in the stupid credulity of the Latin relic-hunters, and made a profitable commerce of this new devotion. The latter paid considerable sums for legs and arms, skulls and jaw-bones (several of which were Pagan, and some not human), and other things that were supposed to have belonged to the primitive worthies of the Christian church; and thus the Latin churches came to the possession of those celebrated relics of St Mark, St James, St Bartholomew, Cyprian, Pantaloon, and others, which they show at this day with so much ostentation. But there were many who, unable to procure for themselves these spiritual treasures by voyages and prayers, had recourse to violence and theft; for all sorts of means, and all sorts of attempts in a cause of this nature, were considered, when successful, as pious and acceptable to the Supreme Being.— Besides the arguments from antiquity to which the Papists refer, in vindication of their worship of relics, of which the reader may form some judgment from this article, Bellarmine appeals to Scripture in support of it, and cites the following passages, viz. Exod. xiii. 19.; Deut. xxxiv. 6.; 2 Kings xiii. 21.; 2 Kings xxiii. 16, 17, 18.; Isaiah xi. 10.; Matthew xi. 20, 21, 22.; Acts v. 12–15.; Acts xix. 11, 12. See *POPERY*.

The Roman Catholics in Great Britain do not acknowledge any worship to be due to relics, but merely a high veneration and respect, by which means they think they honour God, who, they say, has often wrought very extraordinary miracles by them. But, however proper this veneration and respect may be, its abuse has been so great and so general, as fully to warrant the rejection of them altogether.

Relics are forbidden to be used or brought into England by several statutes; and justices of peace are empowered to search houses for popish books and relics,

which, when found, are to be defaced and burnt, &c. 3 Jac. I. cap. 26.

RELICT, in law, the same with *WIDOW*.

RELIEF (*Relevamen*; but, in *Domesday*, *Relevatio*, *Relevium*), signifies a certain sum of money, which the tenant, holding by knight's service, grand serjeanty, or other tenure, (for which homage or legal service is due), and being at full age at the death of his ancestor, paid unto his lord at his entrance. See *PRI-MER*.

Though reliefs had their original while feuds were only life-estates, yet they continued after feuds became hereditary; and were therefore looked upon, very justly, as one of the greatest grievances of tenure: especially when, at the first, they were merely arbitrary and at the will of the lord; so that, if he pleased to demand an exorbitant relief, it was in effect to disinherit the heir. The English ill brooked this consequence of their new-adopted policy; and therefore William the Conqueror by his laws *ascertained* the relief, by directing (in imitation of the Danish heriots), that a certain quantity of arms, and habiliments of war, should be paid by the earls, barons, and vassals respectively; and, if the latter had no arms, they should pay 100s. William Rufus broke through this composition, and again demanded arbitrary uncertain reliefs, as due by the feudal laws; thereby in effect obliging every heir to new-purchase or *redeem* his land: but his brother Henry I. by the charter before-mentioned, restored his father's law; and ordained, that the relief to be paid should be according to the law so established, and not an arbitrary redemption.— But afterwards, when, by an ordinance in 27 Hen. II. called the *assise of arms*, it was provided, that every man's armour should descend to his heir, for defence of the realm, and it thereby became impracticable to pay these acknowledgments in arms according to the laws of the Conqueror, the composition was universally accepted of 100s. for every knight's fee, as we find it ever after established. But it must be remembered, that this relief was only then payable, if the heir at the death of his ancestor had attained his full age of 21 years.

To *RELIEVE the GUARD*, is to put fresh men upon guard, which is generally every 24 hours.

To *RELIEVE the Trenches*, is to relieve the guard of the trenches, by appointing those for that duty who have been there before.

To *RELIEVE the Sentries*, is to put fresh men upon that duty from the guard, which is generally done every two hours, by a corporal who attends the relief, to see that the proper orders are delivered to the soldier who relieves.

RELIEVO, or RELIEF, in sculpture, &c. is the projection or standing out of a figure which arises prominent from the ground or plane on which it is formed; whether that figure be cut with the chissel, moulded, or cast.

There are three kinds or degrees of relievo, viz. alto, basso, and demi-relievo. The alto-relievo, called also *haut-relief*, or *high-relievo*, is when the figure is formed after nature, and projects as much as the life. Basso-relievo, bas-relief, or low-relievo, is when the work is raised a little from the ground, as in medals, and the frontispieces of buildings; and particularly in the histo-

Relief

Relievo.

Relievo,
Religion.

ries, festoons, foliages, and other ornaments of friezes. Demi-relievo is when one half of the figure rises from the plane. When, in a basso-relievo, there are parts that stand clear out, detached from the rest, the work is called a *demi-basso*.

In architecture, the relievo or projecture of the ornaments ought always to be proportioned to the magnitude of the building it adorns, and to the distance at which it is to be viewed.

RELIEVO, or *Relief*, in painting, is the degree of boldness with which the figures seem, at a due distance, to stand out from the ground of the painting.

The relievo depends much upon the depth of the shadow, and the strength of the light; or on the height of the different colours, bordering on one another; and particularly on the difference of the colour of the figure from that of the ground: thus, when the light is so disposed as to make the nearest parts of the figure advance, and is well diffused on the masses, yet insensibly diminishing, and terminating in a large spacious shadow, brought off insensibly, the relievo is said to be bold, and the clear obscure well understood.

* De Natura
Deorum,
lib. 2. § 28.
Religion
defined;

2
And distin-
guished
from theo-
logy.

3
It is an im-
portant sub-
ject of spe-
culation.

RELIGION (RELIGIO), is a Latin word derived, according to Cicero*, from *relegere*, "to re-consider;" but according to Servius and most modern grammarians, from *religare*, "to bind fast." The reason assigned by the Roman orator for deducing *religio* from *relego*, is in these words, "qui autem omnia, quæ ad cultum deorum pertinerent, diligenter retracterent, et tanquam relegerent, sunt dicti religiosi ex relegendo." The reason given by Servius for his derivation of the word is, "quod mentem religio religet." If the Ciceronian etymology be the true one, the word *religion* will denote the diligent study of whatever pertains to the worship of the gods; but according to the other derivation, which we are inclined to prefer, it denotes that obligation which we feel on our minds from the relation in which we stand to some superior power. In either case, the import of the word *religion* is different from that of *theology*, as the former signifies a number of practical duties, and the latter a system of speculative truths. *Theology* is therefore the foundation of *religion*, or the science from which it springs; for no man can study what pertains to the worship of superior powers till he believe that such powers exist, or feel any obligation on his mind from a relation of which he knows nothing.

This idea of religion, as distinguished from theology, comprehends the duties not only of those more refined and complicated systems of theism or polytheism which have prevailed among civilized and enlightened nations, such as the polytheism of the Greeks and Romans, and the theism of the Jews, the Mahometans, and the Christians; it comprehends every sentiment of obligation which human beings have ever conceived themselves under to superior powers, as well as all the forms of worship which have ever been practised through the world, however fantastic, immoral, or absurd.

When we turn our eyes to this feature of the human character, we find it peculiarly interesting. Mankind are distinguished from the brutal tribes, and elevated to an higher rank, by the rational and moral faculties with which they are endowed; but they are still more widely distinguished from the inferior creation, and more high-

ly exalted above them, by being made capable of religious notions and religious sentiments. The slightest knowledge of history is sufficient to inform us, that religion has ever had a powerful influence in moulding the sentiments and manners of men. It has sometimes dignified, and sometimes degraded, the human character. In one region or age it has been favourable to civilization and refinement; in another, it has occasionally cramped the genius, depraved the morals, and deformed the manners of men. The varieties of religion are innumerable; and the members of every distinct sect must view all who differ from them as more or less mistaken with respect to the most important concerns of man. Religion seems to be congenial to the heart of man; for wherever human society subsists, there we are certain of finding religious opinions and sentiments.

It must, therefore, be an important subject of speculation to the man and the philosopher to consider the origin of religion; to inquire, How far religion in general has a tendency to promote or to injure the order and happiness of society? and, above all, to examine, What particular religion is best calculated to produce an happy influence on human life?

We shall endeavour to give a satisfactory answer to each of these questions, referring to the article THEOLOGY the consideration of the dogmas of that particular religion which, from our present inquiries, shall appear to be true, and to have the happiest influence on human life and manners.

I. The foundation of all religion rests on the belief of the existence of one or more superior beings, who govern the world, and upon whom the happiness or misery of mankind ultimately depends. Of this belief, as it may be said to have been universal, there seem to be but three sources that can be conceived. Either the image of Deity must be stamped on the mind of every human being, the savage as well as the sage; or the founders of societies, and other eminent persons, tracing by the efforts of their own reason visible effects to invisible causes, must have discovered the existence of superior powers, and communicated the discovery to their associates and followers; or, lastly, the universal belief in such powers must have been derived by tradition from a primæval revelation, communicated to the progenitors of the human race.

One or other of these hypotheses must be true, because a fourth cannot be framed. But we have elsewhere (POLYTHEISM, n° 2.) examined the reasoning which has been employed to establish the first, and shewn that it proceeds upon false notions of human nature. We should likewise pronounce it contrary to fact, could we believe, on the authority of some of its patrons, who are not ashamed to contradict one another, that the Kamtschatkans, and other tribes, in the lowest state of reasoning and morals, have no ideas whatever of Deity. We proceed, therefore, to consider the second hypothesis, which is much more plausible, and will bear a stricter scrutiny.

That the existence and many of the attributes of the Deity are capable of rigid demonstration, is a truth which cannot be controverted either by the philosopher or the Christian; for "the invisible things of Him from the creation of the world are clearly seen, being understood by the things that are made, even His eternal power and Godhead," (see METAPHYSICS, Part III. chap.

Religion.

Three ques-
tions con-
cerning re-
ligion.

Of the
source or
foundation
of religion.

It does not
arise from
an original
stamp on
the mind.

Nor from

Religion. chap. vi. and THEOLOGY, n° 8, 9.) But surely it would be rash to infer, either that every truth for which, when it is known; the ingenuity of man can frame a demonstration, is therefore *discoverable* by human sagacity, or that all the truths which have been discovered by a *Newton* or a *Locke* might therefore have been discovered by untaught barbarians. In mathematical science, there are few demonstrations of easier comprehension than that given by Euclid, of the theorem of which Pythagoras is the reputed author; yet no man ever dreamed that a boy capable of being made to understand that theorem, must therefore have sagacity equal to the sage of Samos; or that such a boy, having never heard of the relation between the hypotenuse and other two sides of a right angled triangle, would be likely to *discover* that the square of the former is precisely equal to the sum of the squares of the latter. Just so it seems to be with the fundamental truths of theology. There can hardly be conceived a demonstration less intricate, or more conclusive, than that which the man of science employs to prove the existence of at least one God, possessed of boundless power and perfect wisdom. And could we suppose that the human race had remained without any knowledge of God in the world, till certain lucky individuals had by some means or other made themselves masters of the rules of logic, and the philosophy of causes, there can be no doubt but that these individuals might have discovered the existence of superior powers, and communicated their discovery to their associates and followers. But this supposition cannot be admitted, as it is contradicted by the evidence of all history. No nation or tribe has ever been found, in which there is not reason to believe that some notions were entertained of superior and invisible powers, upon which depends the happiness or misery of mankind: and from the most authentic records of antiquity, it is apparent that very pure principles of theism prevailed in some nations long before the rules of logic, and the philosophy of causes, were thought of, by any people under heaven.

The supposition before us is inadmissible upon other accounts. Some modern philosophers have fancied that the original progenitors of mankind were left entirely to themselves from the moment of their creation; that they wandered about for ages without the use of speech and in the lowest state of savagism; but that they gradually civilized themselves, and at last stumbled upon the contrivance of making articulate sounds significant of ideas, which was followed by the invention of arts and sciences, with all the blessings of religion and legislation in their train. But this is a wild reverie, inconsistent with the phenomena of human nature.

It is a well known fact, that a man blind from his birth, and suddenly made to see, would not by means of his newly acquired sense discern either the magnitude or figure or distance of objects, but would conceive every thing which communicated to him visible sensations as inseparably united to his eye or his mind (See METAPHYSICS, n° 49—53). How long his sense of sight would remain in such an imperfect state, we cannot positively say; but from attending to the visible sensations of infants, we are confident that weeks, if not months, elapse before they can distinguish one thing from another. We have indeed been told, that Cheselden's famous patient, though he was at first in the state which

we have described, learned to distinguish objects by sight in the course of a few hours, or at the most of a few days; but admitting this to a certain extent to be true, it may easily be accounted for. The disease called a *cataract* seldom occasions total blindness; but let us suppose the eyes of this man to have been so completely dimmed as to communicate no sensation whatever upon being exposed to the rays of light; still we must remember that he had long possessed the power of loco-motion and all his other senses in perfection. He was therefore well acquainted with the real, *i. e.* the tangible magnitude, figure, and distance of many objects; and having been often told that the things which he touched would, upon his acquisition of sight, communicate new sensations to his mind, differing from each other according to the distance, figure, and magnitude of the objects by which they were occasioned, he would soon learn to infer the one from the other, and to distinguish near objects by means of his sight.

The progenitors of the human race, however, if left to themselves from the moment of their creation, had not the same advantages. When they first opened their eyes, they had neither moved, nor handled, nor heard, nor smelled, nor tasted, nor had a single idea or notion treasured up in their memories; but were in all these respects in the state of new-born infants. Now we should be glad to be informed by those sages who have conducted mankind through many generations in which they were *mutum et turpe pecus* to that happy period when they invented language, how the first men were taught to distinguish objects by their sense of sight, and how they contrived to *live* till this most necessary faculty was acquired? It does not appear that men are like brutes, provided with a number of instincts which guide them blindfold and without experience to whatever is necessary for their own preservation (see INSTINCT): On the contrary, all voyagers tell us that, in strange and uninhabited countries, they dare not venture to taste unknown fruits unless they perceive that these fruits are eaten by the fowls of the air. But without the aid of instinct, or of some other guide equally to be depended upon, it is not in our power to conceive how men dropt from the hands of their Creator, and left from that instant wholly to themselves, could move a single step without the most imminent danger, or even stretch out their hands to lay hold of that food which we may suppose to have been placed within their reach. They could not, for many days, distinguish a precipice from a plane, a rock from a pit, or a river from the meadows through which it rolled. And in such circumstances, how could they possibly exist, till their sense of sight had acquired such perfection as to be a sufficient guide to all their necessary motions? Can any consistent theist suppose that the God whose goodness is so conspicuously displayed in all his works, would leave his noblest creature on earth, a creature for whose comfort alone many other creatures seem to have been formed, in a situation so forlorn as this, where his immediate destruction appears to be inevitable? No! This supposition cannot be formed, because mankind still exist.

Will it then be said, that when God formed the first men, he not only gave them organs of sensation, and souls capable of arriving by discipline at the exercise of reason, but that he also impressed upon their minds adequate

But from an original revelation.

Religion.

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This opinion agree-
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writings of
Moses.

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adequate ideas and notions of every object in which they were interested, brought all their organs, external and internal, at once to their utmost possible state of perfection; taught them instantaneously the laws of reasoning; and, in one word, stored their minds with every branch of useful knowledge? This is indeed our own opinion; and it is perfectly agreeable to what we are taught by the Hebrew lawgiver. When God had formed Adam and Eve, Moses does not say that he left them to acquire by slow degrees the use of their senses and reasoning powers, and to distinguish as they could fruits that were salutary from those that were poisonous. No: he placed them in a garden where every tree but one bore fruit fit for food; he warned them particularly against the fruit of that tree; he brought before them the various animals which roamed through the garden; he arranged these animals into their proper genera and species; and by teaching Adam to give them names, he communicated to the first pair the elements of language. This condescension appears in every respect worthy of perfect benevolence; and indeed without it the helpless man and woman could not have lived one whole week. But it cannot be supposed, that amidst so much useful instruction the gracious Creator would neglect to communicate to his rational creatures the knowledge of himself; to inform them of their own origin; and the relation in which they stood to him; and to state in the plainest terms the duties incumbent on them in return for so much goodness.

In what manner all this knowledge was communicated, cannot be certainly known. It may have been in either of the following ways conceivable by us, or in others of which we can form no conception. God may have miraculously stored the minds of the first pair with adequate ideas and notions of sensible and intellectual objects; and then by an internal operation of his own Spirit have enabled them to exert at once their rational faculties so as to discover his existence and attributes, together with the relation in which as creatures they stood to him their Almighty Creator. Or, after rendering them capable of distinguishing objects by means of their senses, of comparing their ideas, and understanding a language, he may have exhibited himself under some sensible emblem, and conducted them by degrees from one branch of knowledge to another, as a school-master conducts his pupils, till they were sufficiently acquainted with every thing relating to their own happiness and duty as rational, moral, and religious, creatures. In determining the question before us, it is of no importance whether infinite wisdom adopted either of these methods, or some other different from them, both which we cannot conceive. The ordinary process in which men acquire knowledge is, by the laws of their nature, extremely tedious. They cannot reason before their minds be stored with ideas and notions; and they cannot acquire these but through the medium of their senses long exercised on external objects.

The progenitors of the human race, left to inform themselves by this process, must have inevitably perished before they had acquired one distinct notion; and it is the same thing with respect to the origin of religion, whether God preserved them from destruction by an internal or external revelation. If he stored their minds at once with the rudiments of all useful knowledge, and

rendered them capable of exerting their rational faculties, so as, by tracing effects to their causes, to discover his being and attributes, he revealed himself to them as certainly as he did afterwards to Moses, when to him he condescended to speak face to face.

If this reasoning be admitted as fair and conclusive, and we apprehend that the principles on which it proceeds cannot be considered as ill-founded, we have advanced so far as to prove that mankind must have been originally enlightened by a revelation. But it is scarce necessary to observe, that this revelation must have been handed down through succeeding generations. It could not fail to reach the era of the deluge. It is not absurd to suppose, that he who spake from heaven to Adam, spake also to Noah. And both the revelation which had been handed down to the postdeluvian patriarch by tradition, and that which was communicated immediately to himself, would be by him made known to his descendants. Thus it appears almost impossible that some part of the religious sentiments of mankind should not have been derived from revelation; and that not of the religious sentiments of one particular family or tribe, but of almost all the nations of the earth.

This conclusion, which we have deduced by fair reasoning from the benevolence of God and the nature of the man, is confirmed by the authority of the Jewish and Christian Scriptures, which are entitled to more implicit credit than all the other records of ancient history.

When we review the internal and external evidence of the authenticity of these sacred books, we cannot for a moment hesitate to receive them as the genuine word of God. If we examine their internal character, they everywhere appear to be indeed the voice of Heaven. The creation of the world—the manner in which this globe was first peopled—the deluge which swept away its inhabitants—the succeeding views of the state of mankind in the next ages after the deluge—the calling of Abraham—the legislation of Moses—the whole series of events which beset the Jewish nation—the prophecies—the appearance of Jesus Christ, and the promulgation of his gospel, as explained to us in the Scriptures—form one series, which is, in the highest degree, illustrative of the power, wisdom, and goodness of the Supreme Being.

While it must be allowed that the human mind is ever prone to debase the sublime principles of true religion by enthusiasm and superstition, reason and candour will not for a moment hesitate to acknowledge, that the whole system of revelation represents the Supreme Being in the most sublime and amiable light: that, in it, religion appears essentially connected with morality: that the legislative code of Moses was such as no legislator ever formed and established among a people equally rude and uncultivated: that the manners and morals of the Jews, vicious and savage as they may in some instances appear, yet merit a much higher character than those either of their neighbours, or of almost any other nation, whose circumstances and character were in other respects similar to theirs: that there is an infinite difference between the Scripture prophecies and the oracles and predictions which prevailed among heathen nations: and that the miracles recorded in those writings which we esteem sacred were attended with circumstances which entitle them to be ranked in a very different

Religion.

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Such a re-
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handed to
posterity.

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The auth-
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Jewish and
Christian
Scriptures
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different class from those which enthusiasm and imposture have fabricated among other nations. See MIRACLE and PROPHECY.

But as the evidence of the divine origin of the primordial religion rests particularly on the authority of the first five books of the Old Testament, it may be thought incumbent on us to support our reasoning on this subject, by proving, that the author of those books was indeed inspired by God. This we shall endeavour to do by one decisive argument; for the nature of the article, and the limits prescribed us, admit not of our entering into a minute detail of all that has been written on the divine legation of Moses.

If the miracles recorded in the book of Exodus, and the other writings of the Hebrew lawgiver, were really performed; if the first-born of the Egyptians were all cut off in one night, as is there related; and if the children of Israel passed through the Red sea, the waters being divided, and forming a wall on their right hand and on their left—it must necessarily be granted, that Moses was sent by God; because nothing less than a divine power was sufficient to perform such wonderful works. But he who supposes that those works were never performed, must affirm that the books recording them were *forged*, either at the era in which the miracles are said to have been wrought, or at some subsequent era: There is no other alternative.

That they could not be *forged* at the era in which they affirm the miracles to have been wrought, a very few reflections will make incontrovertibly evident. These books inform the people for whose use they were written, that their author, after having inflicted various plagues upon Pharaoh and his subjects, brought them, to the number of 600,000, out of Egypt with a high hand; that they were led by a pillar of cloud through the day, and by a pillar of fire through the night, to the brink of the Red sea, where they were almost overtaken by the Egyptians, who had pursued them with chariots and horses; that, to make a way for their escape, Moses stretched out his rod over the sea, which was immediately divided, and permitted them to pass through on dry ground, between two walls of water; and that the Egyptians, pursuing and going in after them to the midst of the sea, were all drowned by the return of the waters to their usual state, as soon as the Hebrews arrived at the further shore. Is it possible now that Moses, or any other man could have persuaded 600,000 persons, however barbarous and illiterate we suppose them, that they had been witnesses of all these wonderful works, if no such works had been performed? Could any art or eloquence persuade all the inhabitants of Edinburgh and Leith, that they had yesterday walked on dry ground through the Frith to Kinghorn, the waters being divided and forming a wall on their right hand and on their left? If this question must be answered in the negative, it is absolutely impossible that the books of Moses, supposing them to have been forged, could have been received by the people who were alive when those wonders are said to have been wrought.

Let us now inquire, whether, if they be forgeries, they could have been received as authentic at any subsequent period; and we shall soon find this supposition as impossible as the former. The books claiming Moses for their author speak of themselves as delivered by him, and from his days kept in the ark of the covenant*; an

ark which, upon this supposition, had no existence prior to the forgery. They speak of themselves likewise, not only as a history of miracles wrought by their author, but as the statutes or municipal law of the nation, of which a copy was to be always in the possession of the priests, and another in that of the supreme magistrate. Now, in whatever age we suppose these books to have been forged, they could not possibly be received as authentic; because no copy of them could then be found either with the king, with the priests, or in the ark, though, as they contain the statute law of the land, it is not conceivable that, if they had existed, they could have been kept secret. Could any man, at this day, forge a book of statutes for England or Scotland, and make it pass upon these nations for the only book of statutes which they had ever known? Was there ever since the world began a book of sham statutes, and these, too, multifarious and burdensome, imposed upon any people as the only statutes by which they and their fathers had been governed for ages? Such a forgery is evidently impossible.

But the books of Moses have internal proofs of authenticity, which no other books of ancient statutes ever had. They not only contain the laws, but also give an historical account of their enactment, and the reasons upon which they were founded. Thus they tell us, that the rite of circumcision was instituted as a mark of the covenant between God and the founder of the Jewish nation, and that the practice of it was enforced by the declaration of the Almighty, that every uncircumcised man-child should be cut off from his people. They inform us that the annual solemnity of the passover was instituted in commemoration of their deliverance when God slew, in one night, all the first-born of the Egyptians; that the first-born of Israel, both of men and beast, were on the same occasion dedicated for ever to God, who took the Levites instead of the first-born of the men; that this tribe was consecrated as priests, by whose hands alone the sacrifices of the people were to be offered; that it was death for any person of a different tribe to approach the altar, or even to touch the ark of the covenant; and that Aaron's budding rod was kept in the ark in memory of the wonderful destruction of Korah, Dathan, and Abiram, for their rebellion against the priesthood.

Is it possible now, if all these things had not been practised among the Hebrews from the era of Moses, with a retrospect to the signal mercies which they are said to commemorate, that any man or body of men could have persuaded a whole nation, by means of forged books, that they had always religiously observed such institutions? Could it have been possible, at any period posterior to the Exodus, to persuade the Israelites that they and their fathers had all been circumcised on the eighth day from their birth, if they had been conscious themselves that they had never been circumcised at all? or that the passover was kept in memory of their deliverance from Egyptian bondage, if no such festival was known among them?

But let us suppose that circumcision had been practised, and all their other rites and ceremonies observed from time immemorial, without their knowing any reason of such institutions; still it must be confessed that the forger of these books, if they were forged, constructed his narrative in such a manner as that no man

Religion. of common sense could receive it as authentic. He says it was death to touch the ark! As such an assertion was never heard of before, and as the ritual he was endeavouring to make them esteem sacred was oppressively multifarious; surely some daring spirit would have ventured to put his veracity to the test by moving the ark and even offering sacrifices; and such a test would at once have exposed the imposture. The budding rod, too, and the hat of manna, which, though long preserved, were never before heard of, must have produced inquiries that could not fail to end in detection. These books speak likewise of weekly sabbaths, daily sacrifices, a yearly expiation, and monthly festivals, all to be kept in remembrance of great things particularly specified as done for the nation at an early period of its existence. If this was not the case, could the forger of the books have persuaded the people that it really was so? The enlightened reasoners of this nation would be offended were we to compare them with the ancient Israelites; but surely they will not say that we are partial to that people, if we bring them to a level with the most savage tribes of the Russian empire, who profess Christianity? Now, were a book to be forged containing an account of many strange things done a thousand years ago in Siberia by an *Apollonius*, or any other philosopher or hero, numbers of the barbarians inhabiting that country would, we doubt not, give implicit credit to the legend: But were the author, in confirmation of his narrative, to affirm, that all the Siberians had from that day to this kept sacred the first day of the week in memory of his hero; that they had all been baptized or circumcised in his name; that in their public judicatories they had sworn by his name, and upon that very book which they had never seen before; and that the very same book was their law and their gospel, by which for a thousand years back the actions of the whole people had been regulated—surely the grossest savage among them would reject with contempt and indignation a forgery so palpable.

If this reasoning be conclusive, the books of Moses must indubitably be authentic, and he himself must have been inspired by the spirit of God. But this point being established, the question respecting the origin of the primæval religion is completely answered. The writer of the book of Genesis informs us, that Adam and Noah received many revelations from the Author of their being, and that their religion was founded on the principles of the purest theism. How it degenerated among the greater part of their descendants into the grossest idolatry, has been shown at large in another place. See POLYTHEISM.

17
Of the influence of religion on society.

II. Having thus answered the first question proposed for discussion in the present article, we now proceed to consider the second, and to inquire whether and how far religious sentiments have a tendency to injure or to promote the welfare of society? This is a subject of the utmost importance; and if we prove successful in our inquiries, we shall be enabled to determine whether the governors of mankind ought carefully to support religious establishments, or whether the philosopher who calls himself a citizen of the world, and professes to feel the most eager desire to promote the interests of his species, acts consistently when he labours to exterminate religion from among men.

* M. Nec-
ker.

A celebrated French financier*, a man of abilities

and virtue, who has published a book on the importance of religious opinions, labours to show that religious establishments are indispensably necessary for the maintenance of civil order, and demonstrates how weak the influence of political institutions is on the morals of mankind; but he refuses to review the history of past ages in order to discover how far religious opinions have actually been injurious or beneficial to the welfare of society; choosing rather to content himself with the result of a series of metaphysical disquisitions.

We admire the spirit which induced a man who had spent a considerable part of his life amid the hurry of public business, to become the strenuous advocate of religion; but we cannot help thinking that, notwithstanding the eloquence, the acuteness, and the knowledge of mankind which he has displayed, his refusing to admit the evidence of facts concerning the influence of religion on society may possibly be regarded by its enemies as a tacit acknowledgment that the evidence of facts would be unfavourable to the cause which he wishes to defend. The fallacy of general reasonings, and the inutility of metaphysics for the purposes of life, are so universally acknowledged, that they have long been the theme of declamation. Though the abuses of religion, as well as the abuses of reason, the perversion of any of the principles of the human mind, and the misapplication of the gifts of providence, may have often produced effects hurtful to the virtue and the happiness of mankind; yet, after tracing religion to a divine origin, we cannot, for a moment, allow ourselves to think that the primary tendency of religion must be hostile to the interests of society, or that it is necessary to view it abstractly in order that we may not, behold it in an odious light. Often has the sceptic attacked religion with artful malice; but perhaps none of his attacks has been so skilfully directed as that which has first ridiculed the absurdity of the most absurd superstitions, and afterwards laboured to prove that the most absurd system of polytheism is more favourable to the interests of society than the purest and most sublime theism. Instances in which the abuse of religion had tended to deprave the human heart, and had led to the most shocking crimes, have been assiduously collected, and displayed in all the aggravating colours in which eloquence could array them, till at length even the friends of true religion have been abashed; and it has become a fashionable opinion, that nothing but self-interest or bigotry can prompt men to represent religion as the friend of civil order. But let us try if, by a candid consideration of what effects have resulted to society from religious principles, in general, without comparing these with regard to truth or falsehood, we can advance any thing to vindicate the character of religion.

Notions of Deity in general, of various orders of divinities, of their moral character, of their influence on human life, of a future state, and of the immortality of the human soul, constitute the leading articles of religion. Let us view these together with the rites to which they have given rise; and we may perhaps be enabled to form some well-grounded notions on this important point.

1. Having proved that the first religious principles entertained by men were derived from revelation, it is impossible to suppose that they could produce effects injurious to society.

18
Triumph of the force of religion.

19
The first religious notions entertained by men could not possibly be injurious to society.

religion.
 the effect
 of atheism
 the
 manners of
 nations

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21
 jealous to society. If religion of any kind has ever lessened the virtue or disturbed the peace of men, it must have been that religion which springs from a belief in a multitude of superior powers actuated by passions, and of whom some were conceived as benevolent and others as malicious beings. That such sentiment should have produced vices unknown in societies where pure theism is professed, will be readily admitted. Even the few *atheists* who live in Christian or Mahometan countries are restrained by the laws, by a desire to promote the honour of the sect, and by many other considerations, from indulging in practices which the example of the false gods of antiquity sanctioned in their votaries. But in determining the present question, we must not compare the virtues of the pagan world with those of individual atheists in modern Europe, but with those of *nations* professing atheism; and such nations are nowhere to be found. We can however easily conceive, that in a society unawed by any notions of God or a future state, no such laws would be enacted as those which restrain the sensual appetites; of which the criminal indulgence was one of the greatest stigmas on the pagan worship of antiquity. In such societies, therefore, those vices would be practised constantly to which paganism gave only an occasional sanction; and many others, in spite of the utmost vigilance of human laws, would be perpetrated in secret, which the most profligate pagans viewed with horror. Conscience, though acting with all her energy, would not be able to command any regard to the laws of morality: No virtue would be known; social order would be nowhere observed; the midnight assassin would everywhere be found; and in the general scramble mankind would be exterminated from the face of the earth.

persevering in depressing them under calamities. On their malevolent deities they conferred a freedom of agency which they denied to the benevolent. No wonder, then, that they were more assiduous in paying their court to the one than to the other. They might with as much propriety have thought of being grateful to the boar or stag whose flesh supported them, as to deities who were always benevolent, because they could not possibly be otherwise. Though negligent of such deities, this can scarce be thought to have had any tendency to render them ungrateful to benefactors like themselves. And yet, it must not be dissembled, that the American Indians, among whom such religious sentiments have been found to prevail, are said to be very little sensible to the emotions of gratitude. An Indian receives a present without thinking of making any grateful acknowledgments to the bestower. He pleases his fancy or gratifies his appetite with what you have given, without seeming to consider himself as under the smallest obligation to you for the gift.

It may be doubted, however, whether this spirit of ingratitude originates from, or is only collateral with, that indifference which refuses adoration and worship to the benevolent divinities. If the former be actually the case, we must acknowledge that those religious notions which we now consider, though preferable to general atheism, are in this respect unfriendly to virtue. But if the Indians may be thought to owe the ingratitude for which they are distinguished to the opinion which they entertain of the existence of a benevolent order of deities, whose benevolence is necessary and involuntary, their ideas of the nature of their malevolent demons do not appear to have produced equal effects on their moral sentiments. However submissive to those dreaded beings, they are far from showing the same tame and cowardly submission to their human enemies: towards them they seem rather to adopt the sentiments of their demons. Inveterate rancour and brutal fury, inhuman cruelty and inconceivable cunning, are displayed in the hostilities of tribes at war; and we know not, after all, if even these sentiments do not owe somewhat of their force to the influence of religion.

Yet let us remember that these same Indians have not been always represented in so unamiable a light; or, at least, other qualities have been ascribed to them which seem to be inconsistent with those barbarous dispositions. They have been described as peculiarly susceptible of conjugal and parental love; and he who is so cannot be destitute of virtue.

2. But leaving the religion of savages, of which very little is known with certainty, let us proceed to examine what is the natural influence of that mixed system of theology which represents to the imagination of men a number of superior and inferior divinities, actuated by the same passions and feelings with themselves, and often making use of their superior power and knowledge for no other purpose but to enable them to violate the laws of moral order with impunity. This is the celebrated polytheism of the Greeks and Romans, and most other nations of antiquity (see **POLYTHEISM**). Could its influence be favourable to virtue?

At a first view every person will readily declare, that such a system must have been friendly to profligacy. If you commit the government of the universe, and the inspection of human society, to a set of beings who are

Religion.

often disposed to regard vice with a no less favourable eye than virtue, and who, though there be an established order by which virtue is discriminated from vice, and right from wrong, yet scruple not to violate that order in their own conduct; you cannot expect them to require in you a degree of rectitude of which they themselves appear incapable. A Mercury will not discourage the thievish arts of the trader; a Bacchus and a Venus cannot frown upon debauchery; Mars will behold with savage delight all the cruelties of war. The Thracians indeed, one of the most barbarous nations of antiquity, whose ferocity was little if at all inferior to that of the Indians who have been distinguished as cannibals, was the favourite nation of Mars; among whom stood his palace, to which he repaired when about to mount his chariot, and arm himself for battle. Even Jupiter, who had been guilty of so many acts of tyrannical caprice, had been engaged in such a multitude of amorous intrigues, and seemed to owe his elevated station as monarch of the sky, not to superior goodness or wisdom, but merely to a superior degree of brutal force, could not be feared as the avenger of crimes, or revered as the impartial rewarder of virtues.

23
But when
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favourable:

That this system had a pernicious effect on morals, and that, as compared with pure theism, it was injurious to society, cannot be denied; but yet, when contrasted with atheism, it was not without its favourable effects. It was so connected with the order of society, that, without its support, that order could scarce have been maintained. The young rake might perhaps justify himself by the example of Jupiter, or Apollo, or some other amorous divinity; the frail virgin or matron might complain of Cupid, or boast of imitating Venus; and the thief might practise his craft under the patronage of Mercury: But if we take the whole system together, if we consider with what views those deities were publicly worshipped, what temples were raised, what rites instituted, what sacrifices offered, and what *feria* consecrated; we shall perhaps find it necessary to acknowledge that the general effects even of that mixed and incoherent system of polytheism which prevailed among the Greeks and Romans were favourable to society. To state a particular instance; the *ancilia* of Mars and the fire of Vesta were thought to secure the perpetuity of the Roman empire. As long as the sacred *ancile*, which had been dropped from heaven for that benevolent purpose, was safely preserved in those holy archives in which it had been deposited; and as long as the sacred fire of Vesta was kept burning, without being once extinguished, or at least suffered to remain for an instant in that state; so long was Rome to subsist and flourish. And, however simple and absurd the idea which connected the prosperity of a nation with the preservation of a piece of wood in a certain place, or with the constant blazing of a flame upon an hearth; yet no fact can be more certain, than that the patriotism and enthusiastic valour of the Romans, which we so much extol and admire, were, in many instances, owing in no inconsiderable degree to the veneration which they entertained for the *ancilia* and the vestal fire.

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As is pro-
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series of
facts, &c.

A numerous series of facts occur in the Roman history, which show the happy effects of their religious opinions and ceremonies on their sentiments concerning social order and the public welfare. How powerful

was the influence of the *sacramentum* administered to the soldiers when they enlisted in the service of their country? The promises made, the idea of the powers invoked, and the rites performed on that occasion, produced so deep and so awful an impression on their minds, that no danger, nor distress, nor discontent, could prompt them to violate their engagements. The responses of the oracles, too, though the dictates of deceit and imposture, were often of singular service to those to whom they were uttered; when they inspired the warrior, as he marched out to battle, with the confidence of success, they communicated to him new vigour, and more heroic valour, by which he was actually enabled to gain, or at least to deserve, the success which they promised. Again, when in times of public distress, the augur and the priest directed some games to be celebrated, certain sacrifices to be offered, or some other solemnities to be performed, in order to appease the wrath of the offended deities; it is plain that the means were not at all suited to accomplish the end proposed by them; yet still they were highly beneficial. When the attention of the whole people was turned entirely to those solemnities by which the wrath of heaven was to be averted, they were roused from that despondency under which the sense of the public distress or danger might have otherwise caused them to sink: the public union was at the same time more closely cemented, and the hearts of the people knit together; and when persuaded, that by propitiating the gods they had removed the cause of their distress, they acquired such calmness and strength of mind as enabled them to take more direct and proper measures for the safety of the state.

Could we view the ancient Greeks and Romans acting in public or in private life under the influence of that system of superstition which prevailed among them; could we perceive how much it contributed to the maintenance of civil order; could we behold Numa and Lycurgus establishing their laws, which would otherwise have met with a very different reception under the sanction of divinities; could we observe all the beneficial effects which arose to communities from the celebration of religious ceremonies—we should no longer hesitate to acknowledge, that those principles in the human heart by which we are susceptible of religious sentiments, are so eminently calculated to promote the happiness of mankind, that even when perverted and abused, their influence is still favourable.

25
The ideas which prevailed among the nations of the heathen world concerning a future state of retribution were, it must be confessed, not very correct. Some of the poets, we believe, have represented them in no unfavourable light: both Homer and Virgil have conducted their heroes through the realms of Pluto, and have taken occasion to unfold to us the secrets of those dreary abodes. The scenes are wild and fanciful; the rewards of the just and virtuous are of no very refined or dignified nature: and of the punishments inflicted on the guilty, it is often hard to say for what ends they could be inflicted; whether to correct and improve, or for the gratification of revenge or whim: they are often so whimsical and unsuitable, that they cannot with any degree of propriety be ascribed to any cause but blind chance or wanton caprice. A great dog with three tongues, a peevish old boat-man with a leaky ferry-boat, demanding

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manding his freight in a surly tone, and an uxorious monarch, are objects too familiar and ludicrous not to degrade the dignity of those awful scenes which are represented as the mansions of the dead, and to prevent them from making a deep enough impression on the imagination. The actions and qualities, too, for which departed spirits were admitted into Elysium, or doomed to the regions of suffering, were not always of such a nature as under a well-regulated government on earth would have been thought to merit reward, or to be worthy of punishment. It was not always virtue or wisdom which conducted to the Elysian fields, or gained admission into the society of the immortal gods.—Ganymede was for a very different reason promoted to be the cup-bearer of Jove; and Hercules and Bacchus could not surely plead that any merits of that kind entitled them to seats in the council, and at the banquets of the immortals. That doctrine, likewise, which represented mortals as hurried by fate to the commission of crimes, which they could no more abstain from committing than the sword can avoid to obey the impulse of a powerful and furious arm plunging it into the breast of an unresisting antagonist, could not but produce effects unfavourable to virtue; and it afforded a ready excuse for the most extravagant crimes.

26
but never-
theless fa-
vourable to
virtue and
moral or-
der.

Yet, after all, he who attentively considers the ideas of the Greeks and Romans concerning the moral government of the world and a future state of rewards and punishments, will probably acknowledge, that their general influence must have been favourable to virtue and moral order. Allow them to have been incorrect and dashed with absurdity; still they represent punishments prepared for such qualities and actions as were injurious to the welfare of society; whilst, for those qualities which rendered men eminently useful in the world, they hold forth a reward. Though incorrect, their ideas concerning a future state were exceedingly distinct; they were not vague or general, but such as might be readily conceived by the imagination, in all their circumstances, as really existing. When a man is told that for such a deed he will be put to death, he may shudder and be alarmed, and think of the deed as what he must by no means commit; but place before him the scene and the apparatus for his execution, call him to behold some other criminal mounting the scaffold, addressing his last words in a wild scream of despair to the surrounding spectators, and then launching into eternity—his horror of the crime, and his dread of the punishment, will now be much more powerfully excited. In the same manner, to encourage the soldier marching out to battle, or the mariner setting sail under the prospect of a storm, promise not, merely in general terms, a liberal reward; be sure to specify the nature of the reward which you mean to bestow; describe it so as that it may take hold on the imagination; and may rise in opposition to the images of death and danger with which his courage is to be assailed.

If these phenomena of the human mind are fairly stated, if it be true that general ideas produce no very powerful effects on the sentiments and dispositions of the human heart, it must then be granted, that though the scenes of future reward and punishment, which the heathens considered as prepared for the righteous and the wicked, were of a somewhat motley complexion; yet still, as they were distinct and even minute draughts,

they must have been favourable to virtue, and contributed in no inconsiderable degree to the support of civil order.

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Another thing of which we may take notice under this head, is the vast multiplicity of deities with which the Greek and Roman mythology peopled all the regions of nature. Flocks and fields, and woods and oaks, and flowers, and many much more minute objects, had all their guardian deities. These were somewhat capricious at times, it is true, and expected to have attention paid them. But yet the faithful shepherd, and the industrious farmer, knew generally how to acquire their friendship; and in the idea of deities enjoying the same simple pleasures, partaking in the same labours, protecting their possessions, and bringing forward the fruits of the year, there could not but be something of a very pleasing nature, highly favourable to industry, which would animate the labours, and cheer the festivals, of the good people who entertained such a notion; nay, would diffuse a new charm over all the scenes of the country, even in the gayest months of the year.

From all of these particular observations, we think ourselves warranted to conclude, that notwithstanding the mixed characters of the deities who were adored by the celebrated nations of antiquity; though they are in many instances represented as conspicuous for vices and frolics; however vain, absurd, and morally criminal, some of the rites by which they were worshipped may have been, and however incorrect the notions of the heathens concerning the moral government of the universe and a future state of retribution; yet still, after making a just allowance for all these imperfections, the general influence of their religious system was rather favourable than unfavourable to virtue and to the order and happiness of society.

It was not without good reason that the earliest legislators generally endeavoured to establish their laws, and constitutions on the basis of religion; government needs the support of opinion; the governed must be impressed with a belief that the particular establishment to which they are required to submit, is the best calculated for their security and happiness, or is supported on some such solid foundation, that it must prove impossible for them to overturn it, or is connected with some awful sanction, which it would be the most heinous impiety to oppose. Of these several notions, the last will ever operate on most men with the most steady influence. We are frequently blind to our own interest; even when eager for the attainment of happiness, we often refuse to take the wisest measures for that end. The great bulk of the people in every community are so little capable of reasoning and foresight, that the public minister who shall most steadily direct his views to the public good will often be the most unpopular. Those laws, and that system of government, which are the most beneficial, will often excite the strongest popular discontents. Again, it is not always easy to persuade people that your power is superior to theirs, when it is not really so. No one man will ever be able to persuade a thousand that he is stronger than they all together; and therefore, in order to persuade one part of his subjects or army that it is absolutely necessary for them to submit to him, because any attempts to resist his power would prove ineffectual, a monarch or general must take care first to persuade another part that it is for their interest

27
The notion
of deities
peopling
all nature
of a useful
tendency
when com-
pared with
atheism.

28
The advan-
tage of
establishing
laws, &c.
on the ba-
sis of reli-
gion.

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terest to submit to him; or to impress the whole with a belief that, weak and pitiful as he himself may appear, when viewed singly in opposition to them all, yet by the assistance of some awful invisible beings, his friends and protectors, he is so powerful, that any attempts to resist his authority must prove presumptuous folly. Here, then, the aid of religion becomes requisite. Religious sentiments are the most happily calculated to serve this purpose. Scarce ever was there a society formed, a mode of government established, or a code of laws framed and enacted, without having the religious sentiments of mankind, their notions of the existence of superior invisible beings, and their hopes and fears from those beings, as its fundamental principle. Now, we believe, it is almost universally agreed, that even the rudest form of society is more favourable to the happiness of mankind, and the dignity of the human character, than a solitary and savage state. And if this, with what we have asserted concerning religion as the basis of civil government, be both granted, it will follow, that even the most imperfect religious notions, the most foolish and absurd rites, and the wildest ideas that have been entertained concerning the moral government of the universe by superior beings, and a future state of retribution, have been more advantageous than atheism to the happiness and virtue of human life. We have already granted, nor can it be denied, indeed, that many of the religious opinions which prevailed among the ancient heathens, did contribute, in some degree, to the depravation of their morals: and all that we argue for is, that on a comparative view of the evil and the good which resulted from them, the latter must appear more than adequate to counterbalance the effects of the former.

29
The infinite
advantage
of a pure,
rational,
and true
religion.

But if such be the natural tendency of those principles by which the human heart is made susceptible of religious sentiments, that even enthusiasm and absurd superstition are productive of beneficial effects more than sufficient to counterbalance whatever is malignant in their influence on society—surely a pure rational religion, the doctrines of which are founded in undeniable truth, and all the observances which it enjoins, calculated to promote by their direct and immediate effects some useful purposes, must be in a very high degree conducive to the dignity and the happiness of human nature. Indeed one collateral proof of the truth of any religion, which must have very considerable weight with all who are not of opinion that the system of the universe has been produced and hitherto maintained in order and existence by blind chance, will be its having a stronger and more direct tendency than others to promote the interests of moral virtue and the happiness of mankind in the present life. Even the testimony of thousands, even miracles, prophecies, and the sanction of remote antiquity, will scarce have sufficient weight to persuade us, that a religion is of divine origin, if its general tendency appear to be rather unfavourable than advantageous to moral virtue.

30
Comparative
view
of the effects
of
different
religious
systems.

III. We shall therefore, in the next place, endeavour to determine, from a comparative view of the effects produced on the character and circumstances of society by the most eminent of these various systems of religion which have been in different ages or in different countries established in the world, how far any one of them has in this respect the advantage over the rest; and, if the utility of a system of religion were to

be received as a test of its truth, what particular system might, with the best reason, be received as true, while the rest were rejected.

First, The principle upon which we here set out is, that all, or almost all, systems of religion with which we are acquainted, whether true or false, contribute more or less to the welfare of society. But as one field is more fruitful, and one garden less overgrown with weeds than another; so, in the same manner, one system of religious opinions and ceremonies may be more happily calculated than others to promote the truest interests of mankind. In opposition to those philosophers who are so vehement in their declamations against the inequality of ranks, we have ever been of opinion, that refinement and civilization contribute to the happiness of human life. The character of the solitary savage is, we are told, more dignified and respectable than that of the philosopher and the hero, in proportion as he is more independent. He is indeed more independent; but his independence is that of a stone, which receives no nourishment from the earth or air, and communicates none to animals or vegetables around it. In point of happiness, and in point of respectability, we cannot hesitate a moment, let philosophers say what they will, to prefer a virtuous, enlightened, and polished Briton to any of the rudest savages, the least acquainted with the restraints and the sympathies of social life, that wander through the wild forests of the western world. But if we prefer civilization to barbarism, we must admit, that in this view Christianity has the advantage over every other religious system which has in any age or country prevailed among men; for nowhere has civilization and useful science been carried to such a height as among Christians.

31
Advantage
of civilization;

32
And therefore
of Christianity.

It is not, indeed, in any considerable degree that the absurd superstitions of those rude tribes, who can scarce be said to be formed into any regular society, can contribute to their happiness. Among them the faculty of reason is but in a very low state; and the moral principle usually follows the improvement or the depression of the reasoning faculty. Their appetites and merely animal passions are almost their only principles of action: their first religious notions, if we suppose them not to be derived from revelation or tradition, are produced by the operation of gratitude, or grief, or hope, or fear, upon their imaginations. And to these, however wild and fanciful, it is not improbable that they may owe some of their earliest moral notions. The idea of superior powers naturally leads to the thought that those powers have some influence on human life. From this they will most probably proceed to fancy one set of actions agreeable, another offensive, to those beings to whom they believe themselves subject. And this, perhaps, is the first distinction that savages can be supposed to form between actions, as right or wrong, to be performed or to be avoided. But if this be the case, we must acknowledge that the religious notions of the savage, however absurd, contribute to elevate his character, and to improve his happiness, when they call forth the moral principle implanted in his breast.

33
View of the various
religious notions of
Pagan and
Christianity.

But if the social state be preferable to a state of wild and solitary independence, even the rude superstitions of unenlightened tribes of savages are in another respect beneficial to those among whom they prevail. They usually

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usually form, as has been already observed under this article, the basis of civil order. Religious opinions may lead the great body of the community to reverence some particular set of institutions, some individual, or some family, which are represented to them as peculiarly connected with the gods whom they adore. Under this sanction some form of government is established; they are taught to perform social duties, and rendered capable of social enjoyments. Not only Numa and Lycurgus, but almost every legislator who has sought to civilize a rude people, and reduce them under the restraints of legal government, have endeavoured to impress their people with an idea that they acted with the approbation, and under the immediate direction, of superior powers. We cannot but allow that the rude superstitions of early ages are productive of these advantages to society; but we have already acknowledged, and it cannot be denied, that they are also attended with many unhappy effects. When we view the absurdities intermixed with the systems of religion which prevailed among most of the nations of antiquity, we cannot help lamenting that so noble a principle of human nature as our religious sentiments should be liable to such gross perversion; and when we view the effects which they produce on the morals of mankind, and the forms of society, though we allow them to have been upon the whole rather beneficial than hurtful, yet we cannot but observe, that their unfavourable effects are by far more numerous than if they had been better directed. What unhappy effects, for instance, have been produced by false notions concerning the condition of human souls in a future state. Various nations have imagined that the scenes and objects of the world of spirits are only a shadowy representation of the things of the present world. Not only the souls of men, according to them, inhabit those regions; all the inferior animals and vegetables, and even inanimate bodies that are killed or destroyed here, are supposed to pass into that visionary world; and, existing there in unsubstantial forms, to execute the same functions, or serve the same purposes, as on earth. Such are the ideas of futurity that were entertained by the inhabitants of Guinea. And by these ideas they were induced, when a king or great man died among them, to provide for his comfortable accommodation in the world of spirits, by burying with him meat and drink for his subsistence, slaves to attend and serve him, and wives with whom he might still enjoy the pleasures of love. His faithful subjects vied with each other in offering, one a servant, another a wife, a third a son or daughter, to be sent to the other world in company with the monarch, that they might there be employed in his service. In New Spain, in the island of Java, in the kingdom of Benen, and among the inhabitants of Indostan, similar practices on the same occasion, owing no doubt to similar notions of futurity, have been prevalent. But such practices as these cannot be viewed with greater contempt on account of the opinions which have given rise to them, than horror on account of their unhappy effects on the condition of those among whom they prevail. A lively impression of the enjoyments to be obtained in a future state, together with some very false or incorrect notions concerning the qualities or actions which were to entitle the departing soul to admission into the scene of those enjoy-

ments, is said to have produced equally unhappy effects among the Japanese. They not only bribed their priests to solicit for them; but looking upon the enjoyments of the present life with disgust or contempt, they used to dash themselves from precipices, or cut their throats, in order to get to paradise as soon as possible. Various other superstitions subsisting among rude nations might here be enumerated, as instances of the perversion of the religious principles of the human heart, which render them injurious to virtue and happiness. The austerities which have been practised, chiefly among rude nations, as means of propitiating superior powers, are especially worthy of notice.—When the favourite idol of the Banians is carried in solemn procession, some devotees prostrate themselves on the ground, that the chariot in which the idol is carried may run over them; others, with equal enthusiasm, dash themselves on spikes fastened on purpose to the car. Innumerable are the ways of torture which have been invented and practised on themselves by men ignorantly striving to recommend themselves to the favour of heaven. These we lament as instances in which religious sentiments have been so ill directed by the influence of imagination, and unenlightened erring reason, as to produce unfavourable effects on the human character, and oppose the happiness of social life.—Though we have argued, that even the most absurd systems of religion that have prevailed in the world, have been upon the whole rather beneficial than injurious to the dignity and happiness of human nature; yet if it shall not appear, as we proceed farther in our comparative view of the effects of religion on society, that others have been attended with happier effects than these superstitions which belong to the rude ages of society, we may scarce venture to brand the infidel with the appellation of *fool*, for refusing to give his assent to religious doctrines, or to act under their influence.

2d, The polytheism of the Greeks and Romans, and other heathen nations in a similar state of civilization, we have already considered as being, upon the whole, rather favourable than unfavourable to virtue; but we must not partially conceal its defects. The vicious characters of the deities which they worshipped, the incorrect notions which they entertained concerning the moral government of the universe and a future retribution, the absurdity of their rites and ceremonies, and the criminal practices which were intermixed with them, must have altogether had a tendency to pervert both the reasoning and the moral principles of the human mind. The debaucheries of the monarch of the gods, and the fidelity with which his example in that respect was followed by the whole crowd of the inferior deities, did, we know, dispose the devout heathen, when he felt the same passions which had asserted their power over the gods, to gratify them without scruple. It is a truth, however, and we will not attempt to deny or conceal it, that the genius of the polytheism of the Greeks and Romans was friendly to the arts; to such of them especially as are raised to excellence by the vigorous exertion of a fine imagination; music, poetry, sculpture, architecture, and painting, all of these arts appear to have been considerably indebted for that perfection to which they attained, especially among the Greeks, to the splendid and fanciful system of mythology which was received among that ingenious people.—

But

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Religion. But we cannot give an equally favourable account of its influence on the sciences. There was little in that system that could contribute to call forth reason. We may grant indeed, that if reason can be so shocked with absurdity as to be roused to a more vigorous exertion of her powers, and a more determined assertion of her rights in consequence of surveying it; in that case this system of mythology might be favourable to the exercise and improvement of reason; not otherwise.

The connection of paganism with morality was too imperfect for it to produce any very important effects on the morals of its votaries. Sacrifices and prayers, and temples and festivals, not purity of heart and integrity of life, were the means prescribed for propitiating the favour of the deities adored by the Pagans. There were other means, too, besides true heroism and patriotism, of gaining admission into the Elysian fields, or obtaining a seat in the council of the gods. Xenophon, in one of the most beautiful parts of his *Memoirs of Socrates*, represents Hercules wooed by Virtue and Pleasure in two fair female forms, and deliberating with much anxiety which of the two he should prefer. But this is the fiction of a philosopher desirous to improve the fables of antiquity in such a way as to render them truly useful. Hercules does not appear, from the tales which are told us of his adventures, to have been at any such pains in choosing his way of life. He was received into the palace of Jove, without having occasion to plead that he had through life been the faithful follower of that goddess to whom the philosopher makes him give the preference; his being the son of Jove, and his wild adventures, were sufficient without any other merits to gain him that honour. The same may be said concerning many of the other demi-gods and heroes who were advanced to heaven, or conveyed to the blessed fields of Elysium. And whatever might be the good effects of the religion of Greece and Rome in general upon the civil and political establishments, and in some few instances on the manners of the people, yet still it must be acknowledged to have been but ill calculated to impress the heart with such principles as might in all circumstances direct to a firm, uniform, tenor of virtuous conduct.

But after what has been said on the character of this religion elsewhere (see *POLYTHEISM*), and in the second part of this article, we cannot without repetition enlarge farther on it here. Of the Jewish religion, however, we have as yet said little, having on purpose reserved to this place whatever we mean to introduce under the article, concerning its influence on society.

3d, When we take a general view of the circumstances in which the Jewish religion was established, the effects which it produced on the character and fortune of the nation, the rites and ceremonies which it enjoined, and the singular political institutions to which it gave a sanction, it may perhaps appear hard to determine, whether it were upon the whole more or less beneficial to society than the polytheism of the Egyptians, Greeks, and Romans. But if such be the judgement which preconceived prejudices, or an hasty and careless view, have induced some to form of this celebrated system; there are others who, with equal keenness, and sounder reasoning, maintain, that it was happily calculated, not only to accomplish the great design of

preparing the way for the promulgation of the Gospel, but likewise to render the Jews a more refined and virtuous people, and a better regulated community, than any neighbouring nation. In the first place, the attributes of the Deity were very clearly exhibited to the Jews in the establishment of their religion. The miracles by which he delivered them from servitude, and conducted them out of Egypt, were striking demonstrations of his power; that condescension with which he forgave their repeated acts of perverseness and rebellion, was a most convincing proof of his benevolence; and the impartiality with which the observance and the violation of his laws were rewarded and punished, even in the present life, might well convince them of his justice. A part of the laws which he dictated to Moses are of eternal and universal obligation; others of them were local and particular, suited to the character of the Jews, and their circumstances in the land of Canaan. The Jewish code, taken altogether, is not to be considered as a complete system of religion, or laws calculated for all countries and all ages of society. When we consider the expediency of this system, we must take care not to overlook the design for which the Jews are said to have been separated from other nations, the circumstances in which they had lived in Egypt, the customs and manners which they had contracted by their intercourse with the natives of that country, the manner in which they were to acquire to themselves settlements by extirpating the nations of Canaan, the rank which they were to hold among the nations of Syria and the adjacent countries, together with the difficulty of restraining a people so little civilized and enlightened from the idolatrous worship which prevailed among their neighbours: All these circumstances were certainly to be taken into account; and had the legislator of the Jews not attended to them, his institutions must have remained in force only for a short period; nor could they have produced any lasting effects on the character of the nation. With a due attention to these circumstances, let us descend to an examination of particulars.

Although in every religion or superstition that has prevailed through the world, we find one part of its institutions to consist in the enjoining of certain festivals to be celebrated by relaxation from labour, and the performance of certain ceremonies in honour of the gods; yet in none, or almost none besides the Jewish, do we find every seventh day ordained to be regularly kept holy. One great end which the legislator of the Jews had in view in the institution of the Sabbath was, to impress them with a belief that God was the maker of the universe. In the early ages of the world a great part of mankind imagined the stars, the sun, the moon, and the other planets, to be eternal, and consequently objects highly worthy of adoration. To convince the Israelites of the absurdity of this belief, and prevent them from adopting that idolatry, Moses taught them, that those conspicuous objects which the Gentile nations regarded as eternal, and endowed with divine power and intelligence, were created by the hand of God; who, after bringing all things out of nothing, and giving them form, order, and harmony, in the space of six days, rested on the seventh from all his works. Various passages in the Old Testament concur to show, that this was one great end of the institution of the Sabbath.

Religion. Sabbath. The observance of the Sabbath, and detestation of idolatrous worship, are frequently inculcated together; and, again, the breach of the Sabbath, and the worship of idols, are usually reprobated at the same time. Another good reason for the institution of a Sabbath might be, to remind the Jews of their deliverance from bondage, to inspire them with humanity to strangers and domestics, and to mitigate the rigours of servitude.

³⁶ and other
Rivals. The purposes for which the other festivals of the Jewish religion were instituted appear also of sufficient importance. The great miracle, which, after a series of other miracles, all directed to the same end, finally effected the deliverance of the Jews out of Egypt; and their actual departure from that land of servitude, might well be commemorated in the feast of the passover. To recal to the minds of posterity the history of their ancestors, to impress them with an awful and grateful sense of the goodness and greatness of God, and to make them think of the purposes for which his almighty power had been so signally exerted, were surely good reasons for the institution of such a festival. The feast of Pentecost celebrated the first declaration of the law by Moses, in the space of fifty days after the feast of the passover. It served also as a day of solemn thanksgiving for the blessings of a plentiful harvest. On the feast of tabernacles, they remembered the wanderings of their ancestors through the wilderness, and expressed their gratitude to heaven for the more comfortable circumstances in which they found themselves placed. The feast of new moons served to fix their calendar, and determine the times at which the other festivals were to be celebrated; on it trumpets were sounded, to give public notice of the event which was the cause of the festival; no servile works were performed, divine service was carefully attended, and the first fruits of the month were offered to the Lord. The Jewish legislator limited his festivals to a very small number, while the heathens devoted a considerable part of the year to the celebration of theirs. But we perceive the occasions upon which the Jewish festivals were celebrated to have been of suitable importance; whereas those of the heathens were often celebrated on trifling or ridiculous occasions. Piety and innocent recreation shared the Jewish festival; the festivals of the heathens were chiefly devoted to debauchery and idleness.

³⁷ the sabbatical year, jubilee, and
ry. The Hebrews had other solemn seasons of devotion besides the weekly Sabbath and these annual festivals. Every seventh year they rested from labour: they were then neither to plough, to sow, nor to prune; and whatever the earth produced spontaneously that year belonged rather to strangers, orphans, and the poor, than to the proprietors of the ground. On this year insolvent debtors were discharged from all debts contracted by purchasing the necessaries of life: and the great end of this release from debts contracted during the preceding six years, appears to have been to prevent the Hebrew from flying to the Gentiles and forsaking his religion when embarrassed in his circumstances. None but native Israelites and proselytes of righteousness were admitted to this privilege; it was refused to strangers, and even to proselytes of the gate. The jubilee was a festival to be celebrated every fiftieth year. It produced the same effects with the sabbatical year as to rest from labour and the discharge of debts; with this

addition, that on the year of the jubilee slaves obtained their freedom, and the lands reverted to the old proprietors. On the year of the jubilee, as on the sabbatical year, the lands were to rest uncultivated, and lawsuits were now to terminate. The chief design of this institution appears to have been, to preserve the order of ranks and property originally established in the Hebrew state. None but Israelites or circumcised converts could enjoy the benefit of this institution; nor could even these hope to regain their estates on the year of the jubilee, if they sold them for any other purpose but to supply their necessities. The law relative to usury was evidently founded on the same plan of polity with respect to property. To almost any other nation such a law, it must be confessed, would have been unsuitable and unjust: but as the Jews were not designed for a trading nation, they could have little occasion to borrow, unless to relieve distress; and as an indulgence to people in such circumstances, the Jew was forbidden to exact usury from his brother to whom he had lent money.

³⁸ Of clean
and unclean
beasts, and
the place
of worship. The Jewish legislator, we may well think, would be disposed to adopt every proper method to prevent his nation from falling away into the idolatry of heathen nations. Probably one reason of the distinctions between clean beasts which they were permitted to eat, and unclean beasts, the eating of which they were taught to consider as pollution, was to prevent them from convivial intercourse with profane nations, by which they might be seduced to idolatry. We do not readily sit down at table with people who are fond of dishes which we regard with abhorrence. And if the Jews were taught to loathe the flesh of some of those animals which were among the greatest delicacies of the Gentiles, they would naturally of consequence avoid sitting down at meat with them, either at their ordinary meals or at those entertainments which they prepared in honour of their deities; and this we may with good reason consider as one happy mean to preserve them from idolatry. Besides, the Jews were permitted, or rather enjoined, to eat animals which the Gentiles revered as sacred, and from which they religiously withheld all violence. Goats, sheep, and oxen, were worshipped in Egypt (see POLYTHEISM and PAN); and several learned writers are of opinion, that Moses directed his people to sacrifice and eat certain of the favourite animals of the Egyptians, in order to remove from their minds any opinions which they might have otherwise entertained of the sanctity of those pretended deities. Many of the observances which Moses enjoined with regard to food, appear to have been intended to inspire the Israelites with contempt for the superstitions of the people among whom they had so long sojourned. They were to kill the animal which the Egyptians worshipped; to roast the flesh which that people ate raw; to eat the head, which they never ate; and to dress the entrails, which they set apart for divination. These distinctions concurred with the peculiarities of their dress, language, government, customs, places, and times of worship, and even the natural situation of their country, by which they were in a manner confined and fortified on all sides, to separate them in such a manner from neighbouring nations, that they might escape the infection of their idolatry. And if we reflect both on the design for which Providence separated the Israelites from other nations,

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nations, and on the probability that, in the state of society in which mankind were during the earlier period of the Jewish history, the Jews, by mixing with other nations, would rather have been themselves converted to idolatry than have converted idolatrous nations to the worship of the true God; we cannot but be satisfied, that even this, however it may at first appear, was a benefit, not a disadvantage; and in the author of their legislation wisdom, not caprice.

39
Other distinguishing particulars in the Jewish ritual.

But not only in the distinctions of meats, and between clean and unclean animals, does the legislator of the Jews appear to have laboured to fix a barrier between them and other nations which might preserve them from the contagion of idolatry—we shall not err, perhaps, if we ascribe many particulars of their worship to this design in the institutor. The heathens had gods who presided over woods, rivers, mountains, and valleys, and to each of these they offered sacrifices, and performed other rites of worship in a suitable place. Sometimes the grove, sometimes the mountain top, at other times the bank of the river or the brink of the spring, was the scene of their devotions. But as the unity of the divine nature was the truth the most earnestly inculcated on the children of Israel; so in order to impress that truth on their minds with the more powerful efficacy, they were taught to offer their sacrifices and other offerings only in one place, the place chosen by the Lord; and death was threatened to those who dared to disobey the command. To confirm this idea, one of the prophets intimates, that when idolatry should be abolished, the worship of God should not be confined to Jerusalem, but it would then be lawful to worship him anywhere.

40
Effects of these institutions, &c. in impressing a respect for the Deity.

The whole institutions and observances of the Jewish religion appear to have been designed and happily calculated to impress the minds of the people with veneration and respect for the Deity. All the festivals which either commemorated some gracious dispensation of his providence towards their ancestors, or served as days of thanksgiving for the constant returns of his goodness to those who celebrated them, and all the other rites designed to fortify them against idolatry, served at the same time to impress their hearts with awful reverence for the God of Jacob. Various other particulars in the institutions of the Jewish economy appear to have been directed solely to that end. Into the most sacred place, the Holy of Holies, none but the high priest was admitted, and he only once a year. No fire was used in sacrifice but what was taken from the altar. Severe punishments were on various occasions inflicted on such as presumed to intermeddle in the service of the sanctuary in a manner contrary to what the law had directed. All the laws respecting the character, the circumstances, and the services, of the priests and the Levites, appear plainly to have a similar tendency.

In compliance with the notions of Deity which naturally prevailed among a gross and rude people, though no visible object of worship was granted to the Jews, yet they were allowed in their wanderings through the wilderness to have a tabernacle or portable temple, in which the sovereign of the universe sometimes deigned to display some rays of his glory. Incapable as they were of conceiving aright concerning the spiritual nature and the omnipresence of the Deity, they might

possibly have thought Jehovah careless and indifferent about them, had they been at no time favoured with a visible demonstration of his presence.

The sacrifices in use among the Gentiles in their worship of idols were permitted by the Jewish legislator; but he directed them to be offered with views very different from those with which the Gentiles sacrificed to their idols. Some of the sacrifices of the Jewish ritual were designed to avert the indignation of the Deity; some to expiate offences and purify the heart; and all of them to abolish or remove idolatry. Lustrations or ablutions entered likewise into the Jewish ritual; but these were recommended and enjoined by Moses for purposes widely different from those which induced the heathens to place so high a value upon them. The heathens practised them with magical and superstitious ceremonies; but in the Jewish ritual they were intended simply for the cleansing away of impurities and pollutions.

The theocratical form of government to which the Jews were subject, the rewards which they were sure of receiving, and the punishments which they were equally liable to suffer in the present life, had a powerful effect to remove superstition and preserve them from idolatry, as well as to support all the social virtues among them. They were promised a numerous offspring, a land flowing with milk and honey, long life, and victory over their enemies, on the condition of their paying a faithful obedience to the will of their heavenly Sovereign; plague, famine, disease, defeats, and death, were threatened as the punishments to be inflicted on those who violated his laws; and these sanctions, it must be allowed, were happily accommodated to the genius of a rude and carnal-minded people, attentive only to present objects, and not likely to be influenced by remote and spiritual considerations.

There were other rites and prohibitions in the Mosaic law, which appear to have had but little connection with religion, morals, or policy. These may be more liable to be objected against, as adding an unnecessary weight to a burden which, though heavy, might yet have been otherwise borne in consideration of the advantages connected with it. Even these, however, may perhaps admit of being viewed in a light in which they shall appear to have been in no way unfavourable to the happiness of those to whom they were enjoined. They appear to have had none of them an immoral tendency: all of them had, in all probability, a tendency to remove or prevent idolatry, or to support, in some way or other, the religious and the civil establishment to which they belonged.

From these views of the spirit and tendency of the Jewish religion, we may fairly conclude it to have been happily calculated to promote the welfare of society. In comparing it with other religions, it is necessary to reflect on the peculiar purposes for which it was given: that its two principal objects were to preserve the Jews a separate people, and to guard them against the contagion of the surrounding idolatry. When these things are taken into consideration, every candid mind acquainted with the history of ancient nations will readily acknowledge that the whole system, though calculated indeed in a peculiar manner for them, was as happily adapted for the purposes for which it had been wisely and graciously intended, as it is possible to imagine any such

Religion. such system to be. It would be unhappy, indeed, if, on a comparison of pure theism with polytheism, the latter, with all its absurdities, should be found more beneficial to mankind than the former. The theism of the Jews was not formed to be disseminated through the earth; that would have been inconsistent with the purposes for which it is said to have been designed. But while the Jews were separated by their religion from all other nations, and perhaps, in some degree, fixed and rendered stationary in their progress towards refinement, they were placed in circumstances, in respect to laws, and government, and religion, and moral light, which might with good reason render them the envy of every other nation in the ancient world.

45
View of
Christianity.

IV. The Christian religion next demands our attention. It is to be considered as an improvement of the Jewish, or a new superstructure raised on the same basis. If the effects of the Jewish religion were beneficial to those among whom it was established, they were confined almost to them alone. But is the spirit of Christianity equally pure and benignant? Is its influence equally beneficial and more diffusive than that of Judaism? Does it really merit to have triumphed over both the theism of the Jews and the polytheism of the heathens?

46
The doctrines pure and rites simple.

If we consider the doctrines and precepts of the Christian religion, nothing can be more happily calculated to raise the dignity of human nature, and promote the happiness of mankind. The happiness of the individual is best promoted by the exercise of love and gratitude towards God, and resignation to his providence; of humanity, integrity, and good will towards men; and by the due government of our appetites and passions. Social happiness again proceeds from the members of society entertaining a disinterested regard for the public welfare; being actively industrious each in his proper sphere of exertion; and being strictly just and faithful, and generously benevolent in their mutual intercourse. The tenor of the gospel inculcates these virtues; it seems everywhere through the whole of the Christian code to have been the great design of its Author to inspire mankind with mild, benevolent, and peaceable dispositions, and to form them to courteous manners. Christianity again represents the Deity and his attributes in the fairest light; even so as to render our ideas of his nature, and the manner in which he exerts his power, consistent with the most correct principles of morality that can be collected from all the other religions that have prevailed in the earth, and from the writings of the most admired philosophers. The ritual observances which Christianity enjoins are few in number, easy to perform, decent, expressive, and edifying. It inculcates no duties but what are founded on the principles of human nature, and on the relation in which men stand to God, their Creator, Redeemer, and Sanctifier; and it prescribes accurate rules for the regulation of the conduct. The assistance of the spirit of God is promised in this sacred volume to those who assiduously labour to discharge the duties which it enjoins; and it exhibits a striking example of spotless purity, which we may safely venture to imitate. The gospel teaches that worldly afflictions are incident to both good and bad men; a doctrine highly conducive to virtue, which consoles us in distress, prevents despair, and encourages us to persist firmly in our integrity un-

der every difficulty and trial. Christianity represents all men as children of the same God, and heirs of the same salvation, and levels all distinctions of rich and poor, as accidental and insignificant in the sight of him who rewards or punishes with impartiality according to the merits or demerits of his creatures. This doctrine is highly favourable to virtue, as it tends to humble the proud, and to communicate dignity of sentiment to the lowly; to render princes and inferior magistrates moderate and just, gentle and condescending, to their inferiors. It farther requires husbands to be affectionate and indulgent to their wives, wives to be faithful and respectful to their husbands, and both to be true and constant to each other. Such is the purity of the gospel, that it forbids us even to harbour impure thoughts; it requires us to abandon our vices, however dear to us; and to the cautious wisdom of the serpent it directs us to join the innocent simplicity of the dove. The Christian dispensation, to prevent a perseverance in immorality, offers pardon for the past, provided the offender forsake his vicious practices, with a firm resolution to act differently in future. The sanctions of the gospel have a natural tendency to exalt the mind above the paltry pursuits of this world, and to render the Christian incorruptible by wealth, honours, or pleasures. The true Christian not only abstains from injustice towards others, but even forgives those injuries which he himself suffers, knowing that he cannot otherwise hope for forgiveness from God. Such are the precepts, such the spirit, and such the general tendency of the gospel. Even those who refused to give credit to its doctrines and history have yet acknowledged the excellence of its precepts. They have acknowledged, that "no religion ever yet appeared in the world of which the natural tendency was so much directed to promote the peace and happiness of mankind as the Christian; and that the gospel of Christ is one continued lesson of the strictest morality, of justice, benevolence, and universal charity." These are the words of Bolingbroke, one of its keenest and most insidious opponents. Without examining the effects of this religion on society, we might almost venture to pronounce with confidence, that a religion, the precepts of which are so happily formed to promote all that is just and excellent, cannot but be in the highest degree beneficial to mankind. By reviewing the effects which it has actually produced, the favourable opinion which we naturally conceive of it, after considering its precepts, cannot but be confirmed.

One circumstance we must take notice of as rather unfavourable to this review. It is really impossible to do justice to Christianity by such a discussion of its merits. The virtues which it has a natural tendency to produce and cherish in the human heart, are not of a noisy ostentatious kind; they often escape the observation of the world. Temperance, gentleness, patience, benevolence, justice, and general purity of manners, are not the qualities which most readily attract the admiration and obtain the applause of men. The man of Rofs, whom Mr Pope has so justly celebrated, was a private character; his name is now likely to live, and his virtues to be known to the latest posterity: and yet, however disinterested his virtues, however beneficial his influence to all around him, had his character not attracted the notice of that eminent poet, his name

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The virtues
it recommends
unostentatious.

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Its effects
on the
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would perhaps ere this time have been lost in oblivion. Individuals in private life seldom engage the attention of the historian; his object is to record the actions of princes, warriors, and statesmen. Had not the professors of Christianity in the earlier ages of its existence been exposed to persecutions, and unjust accusations from which they were called on to vindicate themselves, we should be strangers to the names and virtues of saints and martyrs, and to the learning and endowments of the first apologists for Christianity. We can therefore only trace the general influence of the institutions of Christianity on society. We cannot hope to make an accurate enumeration of particulars. In many of the countries in which it has been established, it has produced a very favourable change on the circumstances of domestic life. Polygamy, a practice repugnant to the will of our Creator (see **POLYGAMY**), who has declared his intentions in this instance in the plainest manner, by causing nearly equal numbers of males and females to be brought into the world, was never completely abolished but by Christianity.

The practice of divorce, too, though in some cases proper and even necessary, had been so much abused at the time of our Saviour's appearance in the world, that he found reason to declare it unlawful, unless in the case of adultery. The propriety and reasonableness of this prohibition will sufficiently appear, if we consider, that when divorces are easily obtained, both parties will often have nothing else in view at the period of marriage than the dissolution of their nuptial engagements after a short cohabitation; the interests of the husband and the wife will almost always be separate; and the children of such a marriage are scarce likely to enjoy the cordial affection and tender watchful care of either parent. The husband in such a case will naturally be to his wife, not a friend and protector, but a tyrant; fear and deceit, not love, gratitude, or a sense of duty, will be the principles of the wife's obedience.

In another instance, likewise, Christianity has produced an happy change on the circumstances of domestic life; it must be acknowledged to have contributed greatly to the abolition of slavery, or at least to the mitigation of the rigour of servitude. The customs and laws of the Romans in relation to slaves were cruel and severe. Masters were often so inhuman as to remove aged, sick, or infirm slaves, into an island in the Tiber, where they suffered them to perish without pity or assistance. The greater part of the subjects of many of those republics which enjoyed the most liberty, groaned under tyrannical oppression; they were condemned to drag out a miserable existence in hard labour, under inhuman usage, and to be transferred like beasts from one master to another. The hardships of slavery were eased, not by any particular precept of the Gospel, but by the gentle and humane spirit which breathed through the general tenor of the whole system of doctrines and precepts of which the Gospel consists. It must indeed be allowed, that a trade in slaves is at present carried on by people who presume to call themselves Christians, and protected by the legislature of Christian states: but the spirit of the Christian code condemns the practice, and the true Christian will not engage in it.

Partly by the direct and conspicuous, partly by the secret and unseen, influence of Christianity since its promulgation in the world, the hearts of men have been

gradually softened; even barbarians have been formed to mildness and humanity; the influence of selfishness has been checked and restrained; and even war, amid all the pernicious improvements by which men have sought to render it more terrible, has assumed much more of the spirit of mildness and peace than ever entered into it during the reign of heathenism.

If we review the history of mankind with a view to their political circumstances, we shall find, that by some means or other, it has happened, since the time when the Gospel was first preached, that both systems of legislature and forms of government have been raised to much greater perfection, at least in those parts of the world into which the religion of Jesus has made its way, and obtained an establishment.

The popular government of the Romans, notwithstanding the multiplicity of their laws, and the imperfections of their political constitution, was, no doubt, happily enough adapted to promote the increase of the power and the extension of the empire of Rome. In Greece there were various republics, the wisdom and impartiality of whose laws have been highly celebrated. But we apprehend that there is a sufficient number of well authenticated facts to warrant us to affirm, that since Christianity has been propagated, and has had sufficient time to produce its full effect on arts, manners, and literature, even under governments the form of which might appear less favourable than the celebrated models of antiquity to the liberty and happiness of the people in general, these actually have been much better provided for than under the laws of Athens or Sparta, or even of Rome in the days of the consuls. It is a just and happy observation of Montesquieu, who has attributed so much to the influence of climate and local circumstances, that "the mildness so frequently recommended in the Gospel is incompatible with the despotic rage with which an arbitrary tyrant punishes his subjects, and exercises himself in cruelty. It is the Christian religion (says he) which, in spite of the extent of empire, and the influence of climate, has hindered despotism from being established in Ethiopia, and has carried into Africa the manners of Europe. The heir to the empire of Ethiopia enjoys a principality, and gives to other subjects an example of love and obedience.—Not far from hence may be seen the Mahometan shutting up the children of the king of Sennaar, at whose death the council sends to murder them in favour of the prince who ascends the throne. Let us set before our eyes (continues that eloquent writer), in the third chapter of the 24th book of his Spirit of Laws, on one hand the continual massacres of the kings and generals of the Greeks and Romans, and on the other the destruction of people and cities by the famous conquerors Timur Beg and Jenghiz Kan, who ravaged Asia, and we shall perceive, that we owe to Christianity in government a certain political law, and in war a certain law of nations, which allows to the conquered the great advantages of liberty, laws, wealth, and always religion, when the conqueror is not blind to his own interest."

These are the reflections of no common judge in this matter, but one who had long studied the history of nations, and observed the phenomena of the various forms of society, with such success as few others have attained.

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Its effects
in softening
and huma-
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barians.

But on no occasion has the mild influence of Christianity been more eminently displayed, or more happily exerted, than in softening and humanizing the barbarians who overturned the Roman empire. The idolatrous religion which prevailed among those tribes before their conversion to Christianity, instead of disposing them to cultivate humanity and mildness of manners, contributed strongly to render them fierce and blood-thirsty, and eager to distinguish themselves by deeds of savage valour. But no sooner had they settled in the dominions of Rome, and embraced the principles of Christianity, than they became a mild and generous people.

We are informed by Mosheim, who was at pains to collect his materials from the most authentic sources, that in the 10th century Christian princes exerted themselves in the conversion of nations whose fierceness they had experienced, in order to soften and render them more gentle. The mutual humanity with which nations at war treat each other in modern times, is certainly owing, in a great measure, to the influence of the mild precepts of the Gospel. It is a fact worthy of notice too, that during the barbarous ages, the spiritual courts of justice were more rational and impartial in their decisions than civil tribunals.

How many criminal practices which prevailed among heathen nations have been abolished by their conversion to Christianity! Christians of all nations have been observed to retain the virtues and reject the vicious practices of their respective countries. In Parthia, where polygamy prevailed, they are not polygamists; in Persia, the Christian father does not marry his own daughter. By the laws of Zoroaster the Persians committed incest until they embraced the Gospel; after which period they abstained from that crime, and observed the duties of chastity and temperance, as enjoined by its precepts. Even the polished and enlightened Romans were cruel and blood-thirsty before the propagation of the Gospel. The breaking of a glass, or some such trifling offence, was sufficient to provoke Vidius Pollio to cast his slaves into fish-ponds to be devoured by lampreys. The effusion of human blood was their favourite entertainment; they delighted to see men combating with beasts, or with one another; and we are informed on respectable authority, that no wars ever made such havock on mankind as the fights of gladiators, which sometimes deprived Europe of 20,000 lives in one month. Not the humanity of Titus, nor the wisdom and virtue of Trajan, could abolish the barbarous spectacle. However humane and wise in other instances, in this practice those princes complied with the custom of their country, and exhibited splendid shows of gladiators, in which the combatants were matched by pairs; who, though they had never injured nor offended each other, yet were obliged to maim and murder one another in cold blood. Christian divines soon exercised their pens against these horrid practices; the Christian emperor Constantine restrained them by edicts, and Honorius finally abolished them. It would be tedious to proceed through an enumeration of particulars; but wherever Christianity has been propagated, it has constantly operated to the civilization of the manners of mankind, and to the abolition of absurd and criminal practices. The Irish, the Scotch, and all the ancient inhabitants of the British isles, were, notwithstanding

their intercourse with the Romans, rude barbarians, till such time as they were converted to Christianity. The inhuman practice of exposing infants, which once prevailed so generally over the world, and still prevails among some Pagan nations, even under very humane and enlightened legislatures, yielded to the influence of Christianity.

Let us likewise remember, in honour of Christianity, that it has contributed eminently to the diffusion of knowledge, the preservation and the advancement of learning. When the barbarians overspread Europe, what must have become of the precious remains of polished, enlightened antiquity, had there been no other depositaries to preserve them but the heathen priests? We allow that even the Romish clergy during the dark ages did not study the celebrated models of ancient times with much advantage themselves, and did not labour with much assiduity to make the laity acquainted with them. It must even be acknowledged, that they did not always preserve those monuments of genius with sufficient care, as they were often ignorant of their real value. Yet, after all, it will be granted, it cannot be denied, that had it not been for the clergy of the Christian church, the lamp of learning would, in all probability, have been entirely extinguished, during that night of ignorance and barbarity in which all Europe were buried for a long series of centuries, after the irruption of the barbarians into the Roman empire.

Such is the excellence of the Christian system, and such its tendency to meliorate the human character, that its beneficial influence has not been confined to those who have received its doctrines and precepts, and have professed themselves Christians; it has even produced many happy effects on the circumstances and the characters of Pagans and infidels, who have had opportunities of beholding the virtues of Christians, and learning the excellence of the morality of the gospel. Those virtues which distinguished the character of the apostate Julian were surely owing in no inconsiderable degree to his acquaintance with Christianity; and it is an undeniable fact, that after the propagation of Christianity through the Roman empire, even while the purity of that holy religion was gradually debased, the manners of those Pagans who remained unconverted became more pure, and their religious doctrines and worship less immoral and absurd.—We might here adduce a tedious series of facts to the same purpose. Whenever Christians have had any intercourse with Pagan idolaters, and have not concealed the laws of the gospel, nor shown by their conduct that they disregarded them, even those who have not been converted to Christianity have, however, been improved in their dispositions and manners by its influence. The emperor, whose virtues we have mentioned as arising, in a certain degree, from his acquaintance with Christianity, in a letter to an Heathen pontiff, desires him to turn his eyes to the means by which the superstition of Christians was propagated: by kindness to strangers, by sanctity of life, and by the attention which they paid to the burial of the dead. He recommends an imitation of their virtues, exhorts him to cause the priests of Galatia to be attentive to the worship of their gods, and authorises him to strip them of the sacerdotal function, unless they obliged their wives, children, and servants,

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to pay attention to the same duties. He likewise joins works of beneficence, desires the priest to relieve the distressed, and to build houses for the accommodation of strangers of whatever religion; and says, it is a disgrace for Pagans to disregard those of their own religion, while Christians do kind offices to strangers and enemies. This is indeed an eminent instance of the happy influence of Christianity even on the sentiments and manners of those who regarded the Christian name with abhorrence.

52
Christianity to be preferred to all other religions.

Upon the whole then, may we not, from the particulars here exhibited concerning the influence of this religion on the manners and happiness of men in society, conclude that Christianity is infinitely superior to the superstitions of Paganism? as being in its tendency uniformly favourable to the virtue and the happiness of mankind, and even to the system of religion and laws delivered by Moses to the children of Israel: because, while the religion of the Jews was calculated only for one particular nation, and it may almost be said for one particular stage in the progress of society, Christianity is an universal religion, formed to exert its happy influence in all ages and among all nations; and has a tendency to dispel the shades of barbarism and ignorance, to promote the cultivation of the powers of the human understanding, and to encourage every virtuous refinement of manners.

53
View of Mahometanism.

V. Another religion, which has made and still makes a conspicuous figure in the world remains yet to be examined. The religion of Mahomet is that which we here allude to. Whether we consider through what an extensive part of the globe that religion prevails, the political importance of the nations among whom it is professed, or the striking peculiarity of character by which it is distinguished from all other religious systems—it is for all these reasons well worthy of particular notice. Like the Jewish religion, it is not barely a system of religious doctrines and general moral precepts; it forms both the civil legislature and the religious system of those nations among whom it is professed; and, like it too, it would appear to be calculated rather for one particular period in the progress of mankind from rudeness to refinement, than for all ages and all states of society.

The history of its origin is pretty well known, and we have had occasion to enlarge upon it under a former article (see MAHOMET and MAHOMETANISM). We are not here to trace the impostures of the prophet, or to consider the arts by which he so successfully accomplished his designs; but merely to consider the morality of his religion, and its influence on civil order and the happiness of society.

54
It is friendly to ignorance, despotism, and impurity.

If we view the state of the nations among whom it is established, we cannot hesitate a moment to declare it friendly to ignorance, to despotism, and to impurity of manners. The Turks, the Persians, and the Malays, are all Mahometans; and in reviewing their history and considering their present state, we might find a sufficient number of facts to justify the above assertion: and we must not neglect to observe, that, as those nations are not known to have ever been since their conversion to Mahometanism under a much happier government, or in a much more civilized state than at present, it cannot be, with any degree of fairness, argued, with respect to Mahometanism as with respect to Christianity,

that it is only when its influence is so opposed by other causes as to prevent it from producing its full effects, that it does not conduct those societies among which it is established to an high state of civilization and refinement.

55
Remarks on the Koran, &c.

One, and that by no means an inconsiderable, part of the Koran, was occasionally invented to solve some difficulty with which the prophet found himself at the time perplexed, or to help him to the gratification of his ruling passions, lust and ambition. When he and his followers were, at any time, unsuccessful in those wars by which he sought to propagate his religion, to prevent them from falling away into unbelief, or sinking into dependency, he took care to inform them that God suffered such misfortunes to befall believers, as a punishment for their sins, and to try their faith. The doctrine of predestination, which he assiduously inculcated, had an happy effect to persuade his followers to rush boldly into the midst of death and danger at his command. He prevailed with Zeyd to put away his wife, married her himself, and pretended that his crime had the approbation of heaven; and, in the Koran, he introduces the Deity approving of this marriage. Being repulsed from the siege of Mecca, he made a league with the inhabitants; but on the very next year, finding it convenient to surprise the city, by violating this treaty, he justified his perfidy by teaching his followers to disregard promises or leagues made with infidels. In some instances again, we find absurd prohibitions enjoined for similar reasons: his officers, having on some occasion drunk to excess, excited much riot and confusion in the camp, he prohibited the use of wine and other inebriating liquors among his followers in future. Now, though it must be acknowledged that many evils arise from the use of these liquors, yet we cannot but think that, when used in moderation, they are in many cases beneficial to men; and certainly as much allowed by God as opium, which the Mahometans have substituted in their place.

Mahomet is allowed to have copied from the Christian and the Jewish religions, as well as from the idolatrous superstitions which prevailed through Arabia, and thus to have formed a motley mixture of reason and absurdity, of pure theism and wild superstition. He considered also the circumstances of his country, and the prejudices of his countrymen. When he attended to the former, he was generally judicious enough to suit his doctrines and decisions to them with sufficient skill; the latter he also managed with the greatest art; but he entered into accommodation with them in instances when a true prophet or a wise and upright legislator would surely have opposed them with decisive vigour. Where the prophet indulges his own fancy, or borrows from the superstitions of his countrymen, nothing can be more ridiculous than that rhapsody of lies, contradictions, and extravagant fables, which he delivers to his followers. Amazing are the absurdities which he relates concerning the patriarchs, concerning Solomon, and concerning the animals that were assembled in Noah's ark.

56
Mahometanism a mixture of Christianity, Judaism, and the superstitions of Arabia.

But in the whole tissue of absurdities of which his system consists, there is nothing more absurd, or more happily calculated to promote impurity of manners, than his descriptions of heaven and hell; the ideas of future rewards and punishments which he sought to impress

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Notion of heaven and hell.

on the minds of his followers. Paradise was to abound with rivers, trees, fruits, and shady groves; wine which would not intoxicate was to be there plentifully served up to believers; the inhabitants of that happy region were all to enjoy perpetual youth; and their powers of enjoyment were to be enlarged and invigorated, in order that so many fine things might not be thrown away upon them. "Instead of inspiring the blessed inhabitants of paradise with a liberal taste for harmony and science, conversation, and friendship (says Mr Gibbon), Mahomet idly celebrates the pearls and diamonds, the robes of silk, palaces of marble, dishes of gold, rich wines, artificial dainties, numerous attendants, and the whole train of sensual luxury.—Seventy two hours, or black-eyed girls of resplendent beauty, blooming youth, virgin purity, and exquisite sensibility, will be created for the use of the meanest believer; a moment of pleasure will be prolonged for 1000 years, and his faculties will be increased 100 fold, to render him worthy of his felicity." It must be acknowledged that he allows believers other more refined enjoyments than these; thus they are to see the face of God morning and evening; a pleasure which is far to exceed all the other pleasures of paradise. The following is his description of the punishments of hell: The wicked are there to drink nothing but boiling stinking water; breathe nothing but hot winds; dwell for ever in continual burning fire and smoke; eat nothing but briars and thorns, and the fruit of a tree that riseth out of the bottom of hell, whose branches resemble the heads of devils, and whose fruits shall be in their bellies like burning pitch.

All that we can conclude from a general view of the religion of Mahomet, from considering the character of the prophet, or from reviewing the history of the nations among whom it has been established, is, that it is one tissue of absurdities, with a few truths, however, and valuable precepts incongruously intermixed; that a great part of it is unfavourable to virtuous manners, to wise and equal laws, and to the progress of knowledge and refinement. It often inculcates in a direct manner sentiments that are highly immoral; it substitutes trifling, superstitious observances in the room of genuine piety and moral virtue; and it gives such views of futurity as render purity of heart no necessary qualification for seeing God.

Surely, therefore, even the deist, who rejects all but natural religion, would not hesitate to prefer Christianity, and even Judaism, to the religion of Mahomet. Judaism, calculated for a peculiar people, was undoubtedly much more sublime and much more happily framed to render that people virtuous and happy in the circumstances in which they were placed; and Christianity we find to be an universal religion, suited to all circumstances and to all the stages of society, and acting, wherever it is received, with more or less force to the support of civil order, virtuous manners, improvement of arts, and the advancement of science. However, as Mahometanism forms in some measure a regular system, as it has borrowed many of the precepts and doctrines of Judaism and Christianity, not indeed without corrupting and degrading them; and as it has contributed considerably to the support of civil government, although in a very imperfect form, in those countries in which it has obtained an establishment; for all these

reasons we cannot but give it the preference to the superstitions of Paganism.

THE whole result of our inquiries under this article, therefore, is, 1. That as man, by the constitution of his mind, is naturally fitted for acquiring certain notions concerning the existence of invisible, superior beings, and their influence on human life; so the religious ideas which we find to have in all ages of the world, and in all the different stages of the progress of society, prevailed among mankind, appear to have originated partly from the natural exertions of the human imagination, understanding, and passions, in various circumstances, and partly from supernatural revelation.

2. That though religious opinions, together with the moral precepts, and the rites of worship connected with them, may appear to have been in numerous instances injurious to the virtue and happiness of society; yet, as they have often contributed to lead the mind to form moral distinctions, when it would otherwise in all probability have been an entire stranger to such distinctions; and as they have always contributed in an essential manner to the establishment and the support of civil government—it must therefore be acknowledged that they have always, even in their humblest state, been more beneficial than hurtful to mankind.

3. That when the different systems of religion that have prevailed in the world are comparatively viewed with respect to their influence on the welfare of society, we find reason to prefer the polytheism of the Greeks and Romans to the ruder, wilder, religious ideas and ceremonies that have prevailed among savages; Mahometanism, perhaps in some respects, to the polytheism of the Greeks and Romans; Judaism however to Mahometanism; and Christianity to all of them.

RELIGIOUS, in a general sense, something that relates to religion.—We say, a religious life, religious society, &c.—Churches and church-yards are religious places.—A religious war is also called a *croisade*. See *CROISADE*.

RELIGIOUS, is also used substantially for a person engaged by solemn vows to the monastic life; or a person shut up in a monastery to lead a life of devotion and austerity, under some rule or institution. The male religious we popularly call *monks* and *friars*; the female, *nuns* and *canonesses*.

REMBRANDT (Van Rhin), a Flemish painter and engraver of great eminence, was born in 1606, in a mill upon the banks of the Rhine, from whence he derived his name of *Van Rbin*. This master was born with a creative genius, which never attained perfection. It was said of him, that he would have invented painting, if he had not found it already discovered. Without study, without the assistance of any master, but by his own instinct, he formed rules, and a certain practical method for colouring; and the mixture produced the designed effect. Nature is not set off to the greatest advantage in his pictures; but there is such a striking truth and simplicity in them, that his heads, particularly his portraits, seem animated, and rising from the canvas. He was fond of strong contrasts of light and shade. The light entered in his working-room only by a hole, in the manner of a camera obscura, by which he judged with greater certainty of his productions. This artist considered painting like the stage, where

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where the characters do not strike unless they are exaggerated. He did not pursue the method of the Flemish painters of finishing his pieces. He sometimes gave his light such thick touches, that it seemed more like modelling than painting. A head of his has been shown, the nose of which was so thick of paint, as that which he copied from nature. He was told one day, that by his peculiar method of employing colours, his pieces appeared rugged and uneven—he replied, he was a painter, and not a dyer. He took a pleasure in dressing his figures in an extraordinary manner: with this view he had collected a great number of eastern caps, ancient armour, and drapery long since out of fashion. When he was advised to consult antiquity to attain a better taste in drawing, as his was usually heavy and uneven, he took his counsellor to the closet where these old vestments were deposited, saying, by way of derision, those were his antiques.

Rembrandt, like most men of genius, had many caprices. Being one day at work, painting a whole family in a single picture, word being brought him that his monkey was dead, he was so affected at the loss of this animal, that, without paying any attention to the persons who were sitting for their pictures, he painted the monkey upon the same canvas. This whim could not fail of displeasing those the piece was designed for; but he would not efface it, choosing rather to lose the sale of his picture.

This freak will appear still more extraordinary in Rembrandt, when it is considered that he was extremely avaricious; which vice daily grew upon him. He practised various stratagems to sell his prints at a high price. The public were very desirous of purchasing them, and not without reason. In his prints the same taste prevails as in his pictures; they are rough and irregular, but picturesque. In order to heighten the value of his prints, and increase their price, he made his son sell them as if he had purloined them from his father; others he exposed at public sales, and went thither himself in disguise to bid for them; sometimes he gave out that he was going to leave Holland, and settle in another country. These stratagems were successful, and he got his own price for his prints. At other times he would print his plates half finished, and expose them to sale; he afterwards finished them, and they became fresh plates. When they wanted retouching, he made some alterations in them, which promoted the sale of his prints a third time, though they differed but little from the first impressions.

His pupils, who were not ignorant of his avarice, one day painted some pieces of money upon cards; and Rembrandt no sooner saw them, than he was going to take them up. He was not angry at the pleasantry, but his avarice still prevailed. He died in 1674.

REMEMBRANCE, is when the idea of something formerly known recurs again to the mind without the operation of a like object on the external sensory. See MEMORY and REMINISCENCE.

REMEMBRANCERS, anciently called *clerks of the remembrance*, certain officers in the exchequer, whereof three are distinguished by the names of the *king's remembrancer*, the *lord treasurer's remembrancer*, and the *remembrancer of the first fruits*. The king's remembrancer enters in his office all recognizances taken before the barons for any of the king's debts, for appearances or observing

of orders; he also takes all bonds for the king's debts, &c. and makes out processes thereon. He likewise issues processes against the collectors of the customs, excise, and others, for their accounts; and informations upon penal statutes are entered and sued in his office, where all proceedings in matters upon English bills in the exchequer-chamber remain. His duty further is to make out the bills of compositions upon penal laws, to take the statement of debts; and into his office are delivered all kinds of indentures and other evidences which concern the assuring any lands to the crown. He every year *in crastino animarum*, reads in open court the statute for election of sheriffs; and likewise openly reads in court the oaths of all the officers, when they are admitted.

The lord treasurer's remembrancer is charged to make out process against all sheriffs, escheators, receivers, and bailiffs, for their accounts. He also makes out writs of *fiat facias*, and extent for debts due to the king, either in the pipe or with the auditors; and process for all such revenue as is due to the king on account of his tenures. He takes the account of sheriffs; and also keeps a record, by which it appears whether the sheriffs or other accountants pay their proffers due at Easter and Michaelmas; and at the same time he makes a record, whereby the sheriffs or other accountants keep their prefixed days; there are likewise brought into his office all the accounts of customers, comptrollers, and accountants, in order to make entry thereof on record; also all estreats and amercements are certified here, &c.

The remembrancer of the first-fruits takes all compositions and bonds for the payment of first-fruits and tenths; and makes out process against such as do not pay the same.

REMINISCENCE, that power of the human mind, whereby it recollects itself, or calls again into its remembrance such ideas or notions as it had really forgot: in which it differs from memory, which is a treasuring up of things in the mind, and keeping them there, without forgetting them.

REMISSION, in physics, the abatement of the power or efficacy of any quality; in opposition to the *increase* of the same, which is called *intension*.

REMISSION, in law, &c. denotes the pardon of a crime, or the giving up the punishment due thereto.

REMISSION, in medicine, is when a distemper abates for a time, but does not go quite off.

REMITTANCE, in commerce, the traffick or return of money from one place to another, by bills of exchange, orders, or the like.

REMONSTRANCE, an expostulation or humble supplication, addressed to a king, or other superior, beseeching him to reflect on the inconveniences or ill consequences of some order, edict, or the like. This word is also used for an expostulatory counsel, or advice; or a gentle and handsome reproof, made either in general, or particular, to apprise of or correct some fault, &c.

REMORA, or SUCKING-FISH, a species of ECHENEIS. Many incredible things are related of this animal by the ancients; as that it had the power of stopping the largest and swiftest vessel in its course: and even to this day it is asserted by the fishermen in the Mediterranean, that it has a power of retarding the motion of their boats by attaching itself to them; for

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fe, which reason they kill it whenever they perceive this retardation. But in what manner the remora performs this, we have no account.

REMORSE, in its worst sense, means that pain or anguish which one feels after having committed some bad action. It also means tenderness, pity, or sympathetic sorrow. It is most generally used in a bad sense, and is applied to persons who feel compunction for some great crime, as murder and such like. Murders which have been committed with the utmost circumsppection and secrecy, and the authors of which could never have been discovered by any human investigation, have been frequently unfolded by the remorse and confession of the perpetrators, and that too many years afterwards. Of this there are numerous instances, which are well authenticated, and which are so generally known that it is needless to relate them here. See REPENTANCE.

REMPHAN, an idol or Pagan god whom St Stephen says the Israelites worshipped in the wilderness as they passed from Egypt to the land of Promise: "Yea, ye took up the tabernacle of Moloch, and the star of your god REMPHAN; figures which ye made to worship them." That the martyr here quotes the following words of the prophet Amos, all commentators are agreed: "Ye have borne the tabernacle of your Moloch, and CHIUN your images, the star of your god, which ye made to yourselves." But if this coincidence between the Christian preacher and the Jewish prophet be admitted, it follows, that *Chiun* and *Remphan* are two names of one and the same deity. This is indeed farther evident from the LXX translators having substituted in their version the word *Paipav*, instead of *Chiun*, which we read in the Hebrew and English Bibles. But the question which still remains to be answered is, what god was worshipped by the name of *Remphan*, *Raiphan*, or *Chiun*? for about the other divinity here mentioned there is no dispute. See MOLOCH.

That *Chiun* or *Remphan* was an Egyptian divinity, cannot be questioned; for at the era of the *Exodus* the Hebrews must have been strangers to the idolatrous worship of all other nations; nor are they ever accused of any other than Egyptian idolatries during their 40 years wanderings in the wilderness, till towards the end of that period that they became infected by the Moabites with the worship of *Baal-peor*. That *Moloch*, *Moleck*, *Melek*, or *Milcom*, in its original acceptation denotes a king or chief, is known to every oriental scholar; and therefore when it is used as the name of a god, it undoubtedly signifies the sun, and is the same divinity with the Egyptian *Osiris*. Reasoning in this way many critics, and we believe Selden is in the number, have concluded that *Chiun*, and of course *Remphan*, is the planet Saturn; because *Chiun* is written *Ciun*, *Cevan*, *Cewan*, *Cheevin*; all of which are modern oriental names of that planet.

But against this hypothesis insurmountable objections present themselves to our minds. It is universally allowed (see POLYTHEISM), that the first objects of idolatrous worship were the sun and moon, considered

as the king and queen of heaven. The fixed stars, indeed, and the planets, were afterwards gradually admitted into the Pagan rubric; but we may be sure that those would be first associated with the two prime luminaries which most resembled them in brightness, and were supposed to be most benignant to man. But the planet Saturn appears to the naked eye with so feeble a lustre, that, in the infancy of astronomy, it could not make such an impression on the mind as to excite that admiration which we must conceive to have always preceded planetary worship. It is to be observed, too, that by the Pagan writers of antiquity Saturn is constantly represented as a star of baleful influence. He is termed the *leaden planet*; the *planet of malevolent aspect*; the *dismal*, the *inhumane star*. That the Egyptians, at so early a period as that under consideration, should have adored as one of their greatest gods a planet obscure in its appearance, distant in its situation, and baleful in its influence, is wholly incredible.

There is, however, another star which they might naturally adore, and which we know they actually did adore, as one of their most beneficent gods, at a very early period. This is the *αστραυον* or *σολης* of the Greeks, the *canis* or *stella canicularis* of the Romans, and the *dog-star* of modern Europe. By the Egyptians it was called *Sothis* or *Soth*, which signifies *safety*, *beneficence*, *fecundity*; and it received this name, because making its appearance in the heavens at the very time when the Nile overflowed the country, it was supposed to regulate the inundation. On this account Plutarch (*Isis et Osir.*) tells us, they believed the soul of their illustrious benefactress *Isis* to have transmigrated into the star *Sothis*, which they therefore worshipped as the divinity which rendered their country fruitful. It made its appearance, too, on the first day of the month *Thoth* (Α), which was the beginning of the Egyptian year, and as such celebrated with feasting and festivity; and being by much the brightest star in the heavens, Horopollo (*cap. 3.*) informs us it was considered as sovereign over the rest. A combination of so many important circumstances might have induced a people less superstitious than the Egyptians to pay divine homage to that glorious luminary, which was confounded with *Isis*, who had been long regarded with the highest veneration; and as *Isis* was the wife and sister of *Osiris*, and always associated with him, the star of *Isis* or *Remphan* was naturally associated with *Moloch*, the same with *Osiris*.

But it will be asked, how the star which by the Egyptians was called *Soth* or *Sothis* came to be worshipped by the Hebrews under the appellation of *Chiun* or *Remphan*? This is a very pertinent question, and we shall endeavour to answer it.

Every one knows that the pronunciation of oriental words is very uncertain; and that as the vowels were often omitted in writing, it is of very little importance to the meaning how they be supplied, provided we retain the radical consonants. The word *Chiun* may with equal propriety be written *Kiun*, *Kion*, or even *Kyon*, the

(Α) This was the case at a very remote period; but it is otherwise at present, owing to the PRECESSION of the Equinoxes. See that article.

Remphan the Hebrew *jod* being convertible into the Greek *iota* or the Roman *y*; but the words *Cane*, *Chan*, *Kan*, or *Khan*, which are often diversified into *Ken*, *Kyn*, *Cohen*, *Caban*, signifying *Head*, *Chief*, *Prince*, *King*, &c. are diffused through a great part of Asia and Europe. In the Chinese language *Quin*, which signifies a *King*, is so similar to the word *Chiun* or *Khiun* under consideration, that no etymologist will hesitate to pronounce them of the same original and the same import. The word *Kan* or *Khan* is universally known to be an honorary title in Tartary; and *Kaian* or *Kain*, which is manifestly cognate of the word *Chiun* or *Kiun*, is, in the *Phewi* or old Persian language, the epithet applied to the dynasty of princes which succeeded Cyrus the Great. Among the Scythians or ancient Tartars, *Ghiun* signifies the *Sun* and likewise the *day*; and *Kung*, *Kinung*, *Kun*, runs through all the dialects of the Gothic tongue, every where denoting a *chief* or *sovereign*. In the Syrian dialect, *Kon* signifies a *prince*; and hence the Almighty is styled (Gen. xiv. 19.) *Konah*, which is translated *possessor*, but might have, with perhaps more propriety, been rendered *Sovereign* of heaven and earth. In Hebrew, the word *Kahan* or *Kaben*, which is the very same with *Khan* or *Kan*, signifies either a *priest* or a *prince*; and in Egypt *Kon* was the name of the first Hercules or the *sun*. Hence the same word in composition denotes greatness, as *Can-obus* the great serpent; *Can-atboth*, the great *Thoth* or Mercury; *Can-Ofiris*, the great *Ofiris*.

From this deduction we would conclude, that the word, which is found in so many tongues, and always denotes *Chief*, *Prince*, *Sovereign*, is the very word *Chiun* which the Egyptians and Hebrews applied to *Sothis*, as being, in their conceptions, the chief or sovereign of all the stars. This will appear still more probable, when we have ascertained the import of the word *Remphan*, or, as the LXX have it, *Raiphon*.

Phan, the latter part of this word, is unquestionably the same with *Pan*, the most ancient of the Egyptian gods (see *PAN*). It is likewise a cognate of the Hebrew *Phanah*, conspexit, spectavit, vidit; and the radical word seems to be *PHAH*, which signifies sometimes the countenance, and sometimes *light*. Hence *Phaethon*, which is compounded of *pha* light, *eth* or *esh* fire, and *on* strength, came to be one of the names of the sun. *Rai*, which we commonly write *Rajah*, has long signified, among the Indians, a subordinate prince; and we know, that between India and Egypt there was a very early intercourse. *Raiphon*, therefore, may be either the *royal light* or the *bright prince*, subordinate to *Ofiris*; and in either sense, it was a very proper epithet of *Sothis* in the Egyptian kalendar. The word *Rem* or *Rom*, again (for it is sometimes written *Remphan*, and sometimes *Rompha*), is no other than the Hebrew *Rum* "high, exalted." Hence *Remphan* is the *high* or *exalted light*, which *Sothis* certainly was.

For this etymological disquisition we are indebted to Dr Doig, the learned author of *Letters on the Savage State*, who has written a dissertation on *Chiun* and *Remphan*, of such value that we hope it will not be much longer withheld from the public. The ascertaining the identity of those names, and the god to which they belonged, is the least of its merit; for it will be found to throw much light upon many passages in the Old Testament. What confirms his interpretation is, that the

idol consecrated by the Egyptians to *Sothis* or the dog-star, was a female figure with a star on her head; and hence the prophet upbraids his countrymen with having borne the *Star* of their deity.

ACTION OF REMOVING, in Scots law. See *LAW*, N. clxvii. 18.

REMURIA, festivals established at Rome by Romulus to appease the manes of his brother Remus. They were afterwards called *Lemuria*, and celebrated yearly.

REMUS, the brother of Romulus, was exposed together with his brother by the cruelty of his grandfather. In the contest which happened between the two brothers about building a city, Romulus obtained the preference, and Remus, for ridiculing the rising walls, was put to death by his brother's orders, or by Romulus himself (see *ROMULUS*). The Romans were afflicted with a plague after this murder; upon which the oracle was consulted, and the manes of Remus appeased by the institution of the *Remuria*.

RENAL, something belonging to the reins or *KIDNEYS*.

RENCOUNTER, in the military art, the encounter of two little bodies or parties of forces. In which sense *rencounter* is used in opposition to a pitched battle.

RENCOUNTER, in single combats, is used by way of contradistinction to *DUEL*.—When two persons fall out and fight on the spot without having premeditated the combat, it is called a *rencounter*.

RENDEZVOUS, or *RENDEVOUS*, a place appointed to meet in at a certain day and hour.

RENEALMIA, in botany; a genus of the monogynia order, belonging to the monandria class of plants. The corolla is trisid; the nectarium oblong; the calyx monophyllous; the anthera sessile, opposite to the nectarium; the berry is fleshy. There is only one species, which is a native of Surinam.

RENEGADE, or *RENEGADO*, a person who has apostatized or renounced the Christian faith, to embrace some other religion, particularly Mahometanism.

RENFREW, the county-town of Renfrewshire, standing on the small river Cathcart, which flows into the Clyde at the distance of five miles from Glasgow, is a small but ancient royal borough, the seat of the sheriff's court and of a presbytery. The town is neatly built, and the inhabitants enjoy a tolerable share of commerce.—Renfrew was originally joined to Lanerk, but was made an independent sheriffdom by Robert II. who had a palace here. W. Long. 4. 26. N. Lat. 55. 51.

RENFREWSHIRE, a county of Scotland, styled by way of eminence the *barony*, because it was the ancient inheritance of the Stuarts, is a small county, extending about 20 miles from north to south, and 13 from east to west, parted from Dumbartonshire by the river Clyde on the west, bordering on the east with Lanerkshire, and on the north with Cunningham. The face of the country is varied with hill and vale, wood and stream; crowded with populous villages, and adorned with the seats of gentlemen. The soil is in general fertile, producing rye, barley, oats, pease, beans, flax, and some wheat: it likewise yields plenty of coal, and turf for fuel: and affords abundance of pasturage for sheep and cattle. The inhabitants are Lowlanders and Presbyterians; wealthy and industrious, addicted to traffic, and particularly expert in the linen manufacture.

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Their genius is stimulated to commerce, by the example of their neighbours of Glasgow, as well as the convenience of the river and frith of Clyde, along the course of which they are situated.

RENNES, a town of France, in Bretagne, and capital of that province. Before the revolution it had a bishop's see, two abbeys, a parliament, and a mint. It is very populous; the houses are six or seven stories high, and the suburbs of larger extent than the town itself. The cathedral church is large; and the parliament-house a handsome structure. The great square belonging to it is surrounded with handsome houses. There is a tower, formerly a pagan temple, which now contains the town-clock. It is seated on the river Vilaine, which divides it into two parts, and was anciently fortified, but the walls are now in ruins, and the ditch nearly filled up. The siege of the city by Edward III. king of England, is very celebrated in history. The English and Breton army consisted of 40,000 men; and nevertheless, after having remained before it six months, were obliged to retire without success. E. Long. O. 23. N. Lat. 48. 7.

RENNET. See RUNNET.

RENT, in law, a sum of money, or other consideration, issuing yearly out of lands or tenements.

RENTERING, in the manufactories, the same with fine-drawing. It consists in sewing two pieces of cloth edge to edge, without doubling them, so that the seam scarce appears; and hence it is denominated *fine-drawing*. It is a French word meaning the same thing, and is derived from the Latin *retrahere*, or *re, in*, and *trahere*, because the seam is drawn in or covered. We are told*, that in the East Indies, if a piece of fine muslin be torn and afterwards mended by the fine-drawers, it will be impossible to discover where the rent was. In this country the dexterity of the fine-drawers is not so great as that of those in the east; but it is still such as to enable them to defraud the revenue, by sewing a head or slip of English cloth on a piece of Dutch, Spanish, or other foreign cloth: or a slip of foreign cloth on a piece of English, so as to pass the whole as of a piece; and by that means avoid the duties, penalties, &c. The trick was first discovered in France by M. Savary.

RENTERING, in tapestry, is the working new warp into a piece of damaged tapestry, whether eaten by the rats or otherwise destroyed, and on this warp to restore the ancient pattern or design. The warp is to be of woollen, not linen. Among the titles of the French tapestry makers is included that of renters. Fine-drawing is particularly used for a rent or hole, which happens in dressing or preparing a piece of cloth artfully sewed up or mended with silk. All fine-drawings are reckoned defects or blemishes; and should be allowed for in the price of the piece.

RENVERSE, INVERTED, in heraldry, is when any thing is set with the head downwards, or contrary to its natural way of standing. Thus, a chevron renversé, is a chevron with the point downwards. They use also the same term when a beast is laid on its back.

RENUNCIATION, the act of renouncing, abdicating, or relinquishing, any right, real or pretended.

REPARTEE, a smart, ready reply, especially in matters of wit, humour, or raillery. See RAILLERY.

REPEALING, in law, the revoking or annulling of a statute or the like.

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No act of parliament shall be repealed the same session in which it was made. A deed or will may be repealed in part, and stand good for the rest. It is held that a pardon of felony may be repealed on disproving the suggestion thereof.

REPELLENTS, in medicine, remedies which drive back a morbid humour into the mass of blood, from whence it was unduly secreted.

REPENTANCE, in general, means sorrow for any thing past. In theology it means such a sorrow for sin as produces newness of life, or such a conviction of the evil and danger of a sinful course as is sufficient to produce shame and sorrow in the review of it, and effectual resolutions of amendment. In this sense the evangelical writers use *μεταμέλεια* and *μετάνοια*. See PENITENCE and THEOLOGY.

REPERCUSSION, in music, a frequent repetition of the same sound.

REPERTORY, a place wherein things are orderly disposed, so as to be easily found when wanted. The indices of books are repertories, showing where the matters sought for are treated of. Common-place books are also kinds of repertories.

REPETITION, the reiterating of an action.

REPETITION, in music, denotes a reiterating or playing over again the same part of a composition, whether it be a whole strain, part of a strain, or double strain, &c.

When the song ends with a repetition of the first strain, or part of it, the repetition is denoted by *da capo*, or D. C. i. e. "from the beginning."

REPETITION, in rhetoric, a figure which gracefully and emphatically repeats either the same word, or the same sense in different words. See ORATORY, n° 67—80.

The nature and design of this figure is to make deep impressions on those we address. It expresses anger and indignation, full assurance of what we affirm, and a vehement concern for what we have espoused.

REPHIDIM (anc. geog.), a station of the Israelites near mount Horeb, where they murmured for want of water; when Moses was ordered to smite the rock Horeb, upon which it yielded water. Here Joshua defeated the Amalekites. This rock, out of which Moses brought water, is a stone of a prodigious height and thickness, rising out of the ground; on two sides of which are several holes, by which the water ran. (Thevenot.)

REPLEGIARE, in law, signifies to redeem a thing taken or detained by another, by putting in legal sureties.

DE HOMINE REPLEGIANDO. See HOMINE.

REPLEVIN, in law, a remedy granted on a distress, by which the first possessor has his goods restored to him again, on his giving security to the sheriff that he will pursue his action against the party distraining, and return the goods or cattle if the taking them shall be adjudged lawful.

In a replevin the person distrained becomes plaintiff; and the person distraining is called the *defendant* or *avowant*, and his justification an *avowry*.

At the common law replevins are by writ, either out of the king's-bench or common-pleas; but by statute, they are by plaint in the sheriff's court, and court-baron, for a person's more speedily obtaining the goods distrained.

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Reprieve.

If a plaint in replevin be removed into the court of king's-bench, &c. and the plaintiff makes default and becomes non-suit, or judgment is given against him, the defendant in replevin shall have the writ of *retorno habendo* of the goods taken in distress. See the next article.

REPLEVY, in law, is a tenant's bringing a writ of replevin, or *replegiari facias*, where his goods are taken by distress for rent; which must be done within five days after the distress, otherwise at the five days end they are to be appraised and sold.

This word is also used for bailing a person, as in the case of a *homine replegiando*.

REPORT, the relation made upon oath, by officers or persons appointed to visit, examine, or estimate the state, expences, &c. of any thing.

REPORT, in law, is a public relation of cases judicially argued, debated, resolved, or adjudged in any of the king's courts of justice, with the causes and reasons of the same, as delivered by the judges. Also when the court of chancery, or any other court, refers the stating of a case, or the comparing of an account, to a master of chancery, or other referee, his certificate thereon is called a *report*.

REPOSE, in poetry, &c. the same with rest and pause. See REST, &c.

REPOSE, in painting, certain masses or large assemblages of light and shade, which being well conducted, prevent the confusion of objects and figures, by engaging and fixing the eye so as it cannot attend to the other parts of the painting for some time; and thus leading it to consider the several groups gradually, proceeding as it were from stage to stage.

REPRESENTATION, in the drama, the exhibition of a theatrical piece, together with the scenes, machinery, &c.

REPRESENTATIVE, one who personates or supposes the place of another, and is invested with his right and authority. Thus the house of commons are the representatives of the people in parliament. See COMMONS and PARLIAMENT.

REPRIEVE, in criminal law (from *reprendre*, "to take back"), is the withdrawing of a sentence for an interval of time; whereby the execution is suspended. See JUDGMENT.

Blackf.
Comment.

This may be, first, *ex arbitrio judicis*, either before or after judgment: as, where the judge is not satisfied with the verdict, or the evidence is suspicious, or the indictment is insufficient, or he is doubtful whether the offence be within clergy; or sometimes if it be a small felony, or any favourable circumstances appear in the criminal's character, in order to give room to apply to the crown for either an absolute or conditional pardon. These arbitrary reprieves may be granted or taken off by the justices of gaol-delivery, although their session be finished, and their commission expired: but this rather by common usage than of strict right.

Reprieves may also be *ex necessitate legis*: as where a woman is capitally convicted; and pleads her pregnancy. Though this is no cause to stay judgment, yet it is to respite the execution till she be delivered. This is a mercy dictated by the law of nature, *in favorem proli*; and therefore no part of the bloody proceedings in the reign of Queen Mary hath been more justly detested, than the cruelty that was exercised in the island of

Guernsey, of burning a woman big with child; and, when through the violence of the flames the infant sprang forth at the stake, and was preserved by the bystanders, after some deliberations of the priests who assisted at the sacrifice, they cast it into the fire as a young heretic. A barbarity which they never learned from the laws of ancient Rome; which direct, with the same humanity as our own, *quod pregnantis mulieris damnate pena differatur, quoad pariat*: which doctrine has also prevailed in England, as early as the first memorials of our law will reach. In case this plea be made in stay of execution, the judge must direct a jury of twelve matrons or discreet women to inquire into the fact: and if they bring in their verdict *quick with child* (for barely *with child*, unless it be alive in the womb, is not sufficient), execution shall be staid generally till the next session; and so from session to session, till either she is delivered, or proves by the course of nature not to have been with child at all. But if she once hath had the benefit of this reprieve, and been delivered, and afterwards becomes pregnant again, she shall not be intitled to the benefit of a farther respite for that cause. For she may now be executed before the child is quick in the womb; and shall not, by her own incontinence, evade the sentence of justice.

Another cause of regular reprieve is, if the offender become *non compos* between the judgment and the award of execution: for regularly, though a man be *compos* when he commits a capital crime, yet if he becomes *non compos* after, he shall not be indicted; if after indictment, he shall not be convicted; if after conviction, he shall not receive judgment; if after judgment, he shall not be ordered for execution: for *furiosus solo furore punitur*; and the law knows not but he might have offered some reason, if in his senses, to have stayed these respective proceedings. It is therefore an invariable rule, when any time intervenes between the attainder and the award of execution, to demand of the prisoner what he hath to allege why execution should not be awarded against him; and, if he appears to be insane, the judge in his discretion may and ought to reprieve him. Or, the party may plead in bar of execution; which plea may be either pregnancy, the king's pardon, an act of grace, or diversity of person, *viz.* that he is not the same that was attainted, and the like. In this last case a jury shall be impanelled to try this collateral issue, namely, the identity of his person; and not whether guilty or innocent, for that has been decided before. And in these collateral issues the trial shall be *instant*; and no time allowed the prisoner to make his defence or produce his witnesses, unless he will make oath that he is not the person attainted: neither shall any peremptory challenges of the jury be allowed the prisoner, though formerly such challenges were held to be allowable whenever a man's life was in question. If neither pregnancy, insanity, non-identity, nor other plea, will avail to avoid the judgment, and stay the execution, consequent thereupon, the last and surest resort is in the king's most gracious pardon; the granting of which is, the most amiable prerogative of the crown. See the article PARDON.

REPRISALS, a right which princes claim of taking from their enemies any thing equivalent to what they unjustly detain from them or their subjects. For as the delay of making war may sometimes be detrimental

refals, mental to individuals who have suffered by depredations from foreign potentates, our laws have in some respects armed the subject with powers to impel the prerogative; by directing the ministers of the crown to issue letters of marque and reprisal upon due demand: the prerogative of granting which is nearly related to, and plainly derived from, that other of making war; this being indeed only an incomplete state of hostilities, and generally ending in a formal denunciation of war. These letters are grantable by the law of nations, whenever the subjects of one state are oppressed and injured by those of another; and justice is denied by that state to which the oppressor belongs. In this case letters of marque and reprisal words used as synonymous; and signifying, the latter a taking in return, the former the passing the frontiers in order to such taking) may be obtained, in order to seize the bodies or goods of the subjects of the offending state, until satisfaction be made, wherever they happen to be found. And indeed this custom of reprisals seems dictated by nature herself; for which reason we find in the most ancient times very notable instances of it. But here the necessity is obvious of calling in the sovereign power, to determine when reprisals may be made; else every private sufferer would be a judge in his own cause. In pursuance of which principle, it is with us declared by the stat. 4 Hen. V. c. 7. that, if any subjects of the realm are oppressed in time of truce by any foreigners, the king will grant marque in due form, to all that feel themselves grieved. Which form is thus directed to be observed: the sufferer must first apply to the lord privy-seal, and he shall make out letters of request under the privy-seal; and if after such request of satisfaction made, the party required do not within convenient time make due satisfaction or restitution to the party grieved, the lord-chancellor shall make him out letters of marque under the great seal; and by virtue of these he may attack and seize the property of the aggressor nation, without hazard of being condemned as a robber or pirate.

REPRISAL, or *Recaption*, is a species of remedy allowed to an injured person. This happens when any one hath deprived another of his property in goods or chattels personal, or wrongfully detains one's wife, child, or servant; in which case the owner of the goods, and the husband, parent, or master, may lawfully claim and retake them, wherever he happens to find them; so it be not in a riotous manner, or attended with a breach of the peace. The reason for this is obvious; since it may frequently happen that the owner may have this only opportunity of doing himself justice: his goods may be afterwards conveyed away or destroyed; and his wife, children, or servants, concealed or carried out of his reach; if he had no speedier remedy than the ordinary process of law. If therefore he can so contrive it as to gain possession of his property again, without force or terror, the law favours and will justify his proceeding. But, as the public peace is a superior consideration to any one man's private property; and as, if individuals were once allowed to use private force as a remedy for private injuries, all social justice must cease, the strong would give law to the weak, and every man would revert to a state of nature; for these reasons it is provided, that this natural right of recaption shall never be exerted, where such exertion must occasion strife and bodily contention, or endanger

the peace of society. If, for instance, my horse is taken away, and I find him in a common, a fair, or a public inn, I may lawfully seize him to my own use: but I cannot justify breaking open a private stable, or entering on the grounds of a third person, to take him, except he be feloniously stolen; but must have recourse to an action at law.

REPROBATION, in theology, means the act of abandoning, or state of being abandoned, to eternal destruction, and is applied to that decree or resolve which God has taken from all eternity to punish sinners who shall die in impenitence; in which sense it is directly opposed to election. When a sinner is so hardened as to feel no remorse or misgiving of conscience, it is considered as a sign of reprobation; which by the casuists has been distinguished into positive and negative. The first is that whereby God is supposed to create men with a positive and absolute resolution to damn them eternally. This opinion is countenanced by St Augustine and other Christian fathers, and is a peculiar tenet of Calvin and most of his followers. The church of England, in *The thirty-nine Articles*, teaches something like it; and the church of Scotland, in the *Confession of Faith*, maintains it in the strongest terms. But the notion is generally exploded, and is believed by no rational divine in either church, being totally injurious to the justice of the Deity. Negative or conditional reprobation is that whereby God, though he has a sincere desire to save men, and furnishes them with the necessary means, so that all if they will may be saved, yet sees that there are many who will not be saved by the means, however powerful, that are afforded them; tho' by other means which the Deity sees, but will not afford them, they might be saved. Reprobation respects angels as well as men, and respects the latter either fallen or unfallen. See PREDESTINATION.

REPRODUCTION, is usually understood to mean the restoration of a thing before existing, and since destroyed. It is very well known that trees and plants may be raised from slips and cuttings; and some late observations have shown, that there are some animals which have the same property. The polype* was the first instance we had of this; but we had scarce time to wonder at the discovery Mr Trembley had made, when Mr Bonett discovered the same property in a species of water-worm. Amongst the plants which may be raised from cuttings, there are some which seem to possess this quality in so eminent a degree, that the smallest portion of them will become a complete tree again.

It deserves inquiry, whether or not the great Author of nature, when he ordained that certain insects, as these polypes and worms, should resemble those plants in that particular, allowed them this power of being reproduced in the same degree? or, which is the same thing, whether this reproduction will or will not take place in whatever part the worm is cut? In order to try this, Mr Bonett entered on a course of many experiments on the water-worms which have this property. These are, at their common growth, from two to three inches long, and of a brownish colour, with a cast of reddish. From one of these worms he cut off the head and tail, taking from each extremity only a small piece of a twelfth of an inch in length; but neither of these pieces were able to reproduce what was wanting. They both perished in about 24 hours; the tail first,

Reprobation,
Reproduction.

* See *Polype*.

Reproduc-
tion.

and afterwards the head. As to the body of the worm from which these pieces were separated, it lived as well as before, and seemed indeed to suffer nothing by the loss, the head-part being immediately used as if the head was thereon, boring the creature's way into the mud. There are, besides this, two other points in which the reproduction will not take place; the one of these is about the fifth or sixth ring from the head, and the other at the same distance from the tail; and in all probability the condition of the great artery in these parts is the cause of this.

What is said of the want of the reproductive power of these parts relates only to the head and tail ends; for as to the body, it feels very little inconvenience from the loss of what is taken off, and very speedily reproduces those parts. Where then does the principle of life reside in such worms, which, after having their heads cut off, will have not only the same motions, but even the inclinations, that they had before? and yet this difficulty is very small, compared to several others which at the same time offer themselves to our reason. Is this wonderful reproduction of parts only a natural consequence of the laws of motion? or is there lodged in the body of the creature a chain of minute buds or shoots, a sort of little embryos, already formed and placed in such parts where the reproductions are to begin? Are these worms only mere machines? or are they, like more perfect animals, a sort of compound, the springs of whose motions are actuated or regulated by a sort of soul? And if they have themselves such a principle, how is it that this principle is multiplied, and is found in every separate piece? Is it to be granted, that there are in these worms, not a single soul (if it is to be so called) in each, but that each contains as many souls as there are pieces capable of reproducing perfect animals? Are we to believe with Malpighi, that these sorts of worms are all heart and brain from one end to the other! This may be; but yet if we knew that it was so, we should know in reality but very little the more for knowing it: and it seems, after all, that in cases of this kind we are only to admire the works of the great Creator, and sit down in silence.

The nice sense of feeling in spiders has been much talked of by naturalists; but it appears that these worms have yet somewhat more surprising in them in regard to this particular. If a piece of stick, or any other substance, be brought near them, they do not stay for its touching them, but begin to leap and frisk about as soon as it comes towards them. There want, however, some farther experiments to ascertain whether this be really owing to feeling or to fight; for though we can discover no distinct organs of sight in these creatures, yet they seem affected by the light of the sun or a candle, and always frisk about it in the same manner at the approach of either; nay, even the moon-light has some effect upon them.

A twig of willow, poplar, or many other trees, being planted in the earth, takes root, and becomes a tree, every piece of which will in the same manner produce other trees. The case is the same with these worms: they are cut to pieces, and these several pieces become perfect animals; and each of these may be again cut into a number of pieces, each of which will in the same manner produce an animal. It had been supposed by some that these worms were oviparous: but Mr Bo-

Reprod-
tion.

nett, on cutting one of them to pieces, having observed a slender substance, resembling a small filament, to move at the end of one of the pieces, separated it; and on examining it with glasses, found it to be a perfect worm, of the same form with its parent, which lived and grew larger in a vessel of water into which he put it. These small bodies are easily divided, and very readily complete themselves again, a day usually serving for the production of a head to the part that wants one; and, in general, the smaller and slenderer the worms are, the sooner they complete themselves after this operation. When the bodies of the large worms are examined by the microscope, it is very easy to see the appearance of the young worms alive, and moving about within them: but it requires great precision and exactness to be certain of this; since the ramifications of the great artery have very much the appearance of young worms, and they are kept in a sort of continual motion by the systoles and diastoles of the several portions of the artery, which serve as so many hearts. It is very certain, that what we force in regard to these animals by our operations, is done also naturally every day in the brooks and ditches where they live. A curious observer will find in these places many of them without heads or tails, and some without either; as also other fragments of various kinds, all which are then in the act of completing themselves: but whether accidents have reduced them to this state, or they thus purposely throw off parts of their own body for the reproduction of more animals, it is not easy to determine. They are plainly liable to many accidents, by which they lose the several parts of their body, and must perish very early if they had not a power of reproducing what was lost: they often are broken into two pieces, by the resistance of some hard piece of mud which they enter; and they are subject to a disease, a kind of gangrene, rotting off the several parts of their bodies, and must inevitably perish by it, had they not this surprising property.

This worm was a second instance, after the polype, of the surprising power in an animal of recovering its most essential parts when lost. But Nature does not seem to have limited her beneficence in this respect to these two creatures. Mr Bonett tried the same experiments on another species of water-worm, differing from the former in being much thicker. This kind of worm, when divided in the summer-season, very often shows the same property: for if it be cut into three or four pieces, the pieces will lie like dead for a long time, but afterwards will move about again; and will be found in this state of rest to have recovered a head, or a tail, or both. After recovering their parts, they move very little; and, according to this gentleman's experiments, seldom live more than a month.

It should seem, that the more difficult success of this last kind of worm, after cutting, and the long time it takes to recover the lost parts, if it do recover them at all, is owing to its thickness; since we always find in that species of worms which succeeds best of all, that those which are thinnest always recover their parts much sooner than the others.

The water-insects also are not the only creatures which have this power of recovering their lost parts. The earth affords us some already discovered to grow in this manner from their cuttings, and these not less deserving our admiration than those of the water: the

common

Reproduction.

common earth-worms are of this kind. Some of these worms have been divided into two, others into three or four pieces; and some of these pieces, after having passed two or three months without any appearance of life or motion, have then begun to reproduce a head or tail or both. The reproduction of the anus, after such a state of rest, is no long work; a few days do it: but it is otherwise with the head, that does not seem to perform its functions in the divided pieces till about seven months after the separation. It is to be observed, that in all these operations both on earth and water-worms, the hinder part suffers greatly more than the fore part in the cutting; for it always twists itself about a long time, as if actuated by strong convulsions; whereas the head usually crawls away without the appearance of any great uneasiness.

The reproduction of several parts of lobsters, crabs, &c. makes also one of the great curiosities in natural history. That, in lieu of an organical part of an animal broken off, another shall rise perfectly like it, may seem inconsistent with the modern system of generation, where the animal is supposed to be wholly formed in the egg. Yet has the matter of fact been well attested by the fishermen, and even by several virtuosos who have taken the point into examination, particularly M. de Reaumur and M. Perrault, whose skill and exactness in things of this nature will hardly be questioned. The legs of lobsters, &c. consist each of five articulations: now, when any of the legs happen to break by any accident, as in walking, &c. which frequently happens, the fracture is always found to be in a part near the fourth articulation; and what they thus lose is precisely reproduced some time afterwards; that is, a part of a leg shoots out, consisting of four articulations, the first whereof has two claws as before; so that the loss is entirely repaired.

If a lobster's leg be broken off by design at the fourth or fifth articulation, what is thus broken off always comes again; but it is not so if the fracture be made in the first, second, or third articulation. In those cases, the reproduction is very rare if things continue as they are. But what is exceedingly surprising is, that they do not; for, upon visiting the lobster maimed in these barren and unhappy articulations, at the end of two or three days, all the other articulations are found broken off to the fourth; and it is suspected they have performed the operation on themselves, to make the reproduction of a leg certain.

The part reproduced is not only perfectly like that retrenched, but also, in a certain space of time, grows equal to it. Hence it is that we frequently see lobsters, which have their two big legs unequal, and that in all proportions. This shows the smaller leg to be a new one.

A part thus reproduced being broken, there is a second reproduction. The summer, which is the only season of the year when the lobsters eat, is the most favourable time for the reproduction. It is then performed in four or five weeks; whereas it takes up eight or nine months in any other season. The small legs are sometimes reproduced, but more rarely, as well as more slowly, than the great ones: the horns do the same. The experiment is most easily tried on the common crab. See METAPHYSICS, p. 574. note (F); and PHYSIOLOGY, n^o 261.

REPTILES, in natural history, a kind of animals denominated from their creeping or advancing on the belly. Or reptiles are a genus of animals and insects, which, instead of feet, rest on one part of the body, while they advance forward with the rest. Such are earthworms, snakes, caterpillars, &c. Indeed, most of the class of reptiles have feet; only those very small, and the legs remarkably short in proportion to the bulk of the body.

Reptiles
||
Repulsion.

Naturalists observe a world of artful contrivance for the motion of reptiles. Thus, particularly in the earth-worm, Dr Willis tells us, the whole body is only a chain of annular muscles; or, as Dr Derham says, it is only one continued spiral muscle, the orbicular fibres whereof being contracted, render each ring narrower and longer than before; by which means it is enabled, like the worm of an augre, to bore its passage into the earth. Its reptile motion might also be explained by a wire wound on a cylinder, which when slipped off, and one end extended and held fast, will bring the other near to it. So the earthworm having shot out or extended his body (which is with a wreathing), it takes hold by these small feet it hath, and so contracts the hinder part of its body. Dr Tyson adds, that when the forepart of the body is stretched out, and applied to a plane at a distance, the hind part relaxing and shortening is easily drawn towards it as a centre.

Its feet are disposed in a quadruple row the whole length of the worm, with which, as with so many hooks, it fastens down sometimes this and sometimes that part of the body to the plane, and at the same time stretches out or drags after it another.

The creeping of serpents is effected after a somewhat different manner; there being a difference in their structure, in that these last have a campage of bones articulated together.

The body here is not drawn together, but as it were complicated; part of it being applied on the rough ground, and the rest ejaculated and shot from it, which being set on the ground in its turn, brings the other after it. The spine of the back variously wreathed has the same effect in leaping, as the joints in the feet of other animals; they make their leaps by means of muscles, and extend the plicæ or folds. See ZOOLOGY.

REPUBLIC, or commonwealth, a popular state or government; or a nation where the people have the government in their own hands. See GOVERNMENT, ARISTOCRACY, DEMOCRACY, and MONARCHY.

REPUBLIC of Letters, a phrase used collectively of the whole body of the studious and learned people.

REPUDIATION, in the civil law, the act of divorcing. See DIVORCE.

REPULSION, in physics, that property of bodies whereby they recede from each other, and, on certain occasions, mutually avoid coming into contact.

REPULSION, as well as attraction, has of late been considered as one of the primary qualities of all matter, and has been much used in explaining the phenomena of nature: thus the particles of air, fire, steam, electric fluid, &c. are all said to have a repulsive power with respect to one another.—That this is the case with the air, and vapour of all kinds, is certain; because when they are compressed into a small space, they expand with

Reputation,
Request.

with great force: but as to fire, light, and electricity, our experiments fail; nay, the supposition of a repulsive power among the particles of the electric fluid is inconsistent with the phenomena, as has been demonstrated under the article ELECTRICITY, Sect. V. and VI. Even in those fluids, air and steam, where a repulsive power most manifestly exists, it is demonstrable that the repulsion cannot be a *primary* quality, since it can be increased to a great degree by heat, and diminished by cold: but it is impossible that a *primary* quality of matter can be increased or diminished by any external circumstances whatever; for whatever property depends upon external circumstances, is not a primary but a secondary one.—The repulsion of electrified bodies is explained under the article ELECTRICITY: that of others is less subject to investigation; and the most that can be said concerning it is, that in many cases it seems to be the consequence of a modification of fire, and in others of electricity.

REPUTATION means credit, honour, or the character of good; and since we are destined to live in society, is necessary and useful more or less to every human being. There is no man, except one who is overgrown with pride and self-conceit, or whose actions are bad, but pays attention to his reputation, and wishes to possess the good opinion of his neighbours or the world. The love of reputation and of fame are most powerful springs of action; but though they proceed from the same principle, the means of attaining them, and the effects of them, are not altogether the same.

Many means indeed serve equally to support the reputation and to increase the fame, differing only in degrees; others, however, belong peculiarly either to the one or to the other. An honest reputation is within the reach of the bulk of mankind; it is obtained by the social virtues and the constant practice of the common duties of life. This kind of reputation indeed is neither extensive nor brilliant, but it is often the most useful in point of happiness. Wit, talents, and genius, are the necessary requisites for fame; but those advantages are perhaps less real in their consequences than those arising from a good reputation. What is of real use costs little; things rare and splendid require the greatest labour to procure, and yield perhaps a more ideal happiness.

Fame can be possessed, comparatively speaking, but by few individuals; as it requires either very superior abilities, supported by great efforts, or very fortunate circumstances. It is constituted by the applause of mankind, or at least by that of a single nation; whilst reputation is of much less extent, and arises from different circumstances. That reputation which is founded on deceit and artifice is never solid; and the most honourable will always be found to be the most useful. Every one may safely, and indeed ought to, aspire to the consideration and praise due to his condition and merit; but he who aspires to more, or who seeks it by dishonest means, will at length meet with contempt.

REQUEST, in law, a supplication or petition preferred to a prince, or to a court of justice; begging relief in some conscientious cases where the common law grants no immediate redress.

Court of REQUESTS (*curia requisitionum*) was a court of equity, of the same nature with the court of chancery, but inferior to it; principally instituted for the relief of such petitioners as in conscientious cases addres-

sed themselves by supplication to his majesty. Of this court the lord privy-seal was chief judge, assisted by the masters of requests; and it had beginning about the 9 Hen. VII. according to Sir Julius Caesar's tractate upon this subject: though Mr Gwyn, in his preface to his Readings, saith it began from a commission first granted by king Henry VIII. This court, having assumed great power to itself, so that it became burthen some, Mich. anno 40 and 41 Eliz. in the court of common-pleas it was adjudged upon solemn argument, that the court of requests was no court of judicature, &c. and by stat. 16 & 17 Car I. c. 10. it was taken away.

There are still courts of requests, or courts of conscience, constituted in London and other trading and populous districts for the recovery of small debts. The first of these was established in London so early as the reign of Henry VIII. by an act of their common council; which however was certainly insufficient for that purpose, and illegal, till confirmed by statute 3 Jac. I. c. 15. which has since been explained and amended by statute 14 Geo. II. c. 10. The constitution is this: two aldermen and four commoners sit twice a week to hear all causes of debt not exceeding the value of forty shillings; which they examine in a summary way, by the oath of the parties or other witnesses, and make such order therein as is consonant to equity and good conscience. The time and expence of obtaining this summary redress are very inconsiderable, which make it a great benefit to trade; and thereupon divers trading towns and other districts have obtained acts of parliament for establishing in them courts of conscience upon nearly the same plan as that in the city of London.

By 25 Geo. III. c. 45. (which is confined to prosecutions in courts of conscience in London, Middlesex, and the borough of Southwark), and by 26 Geo. III. c. 38. (which extends the provisions of the former act to all other courts instituted for the recovery of small debts), it is enacted, that after the first day of September 1786, no person whatsoever, being a debtor or defendant, and who has been or shall be committed to any gaol or prison by order of any court or commissioners authorised by any act or acts of parliament for constituting or regulating any court or courts for the recovery of small debts, where the debt does not exceed twenty shillings, shall be kept or continued in custody, on any pretence whatsoever, more than twenty days from the commencement of the last mentioned act; or from the time of his, her, or their commitment to prison: and where the original debt does not amount to or exceed the sum of forty shillings, more than forty days from the commencement of the said act, or from the time of his, her, or their commitment as aforesaid; and all gaolers are thereby required to discharge such persons accordingly. And by sect. 2. if it shall be proved to the satisfaction of the court, that any such debtor has money or goods which he has wilfully and fraudulently concealed; in that case the court shall have power to enlarge the aforesaid times of imprisonment for debts under twenty shillings, to any time not exceeding thirty days, and for debts under forty shillings, to any time not exceeding sixty days; which said ground of farther detention shall be specified in the said commitment. And that (by sect. 3.) at the expiration of the said respective times of imprisonment, every such person shall immediately be discharged, without paying any sum of money.

Request.
Blackst.
Comment.

Requiem
Reseda. money, or other reward or gratuity whatsoever, to the gaoler of such gaol on any pretence whatsoever; and every gaoler demanding or receiving any fee for the discharge of any such person, or keeping any such person prisoner after the said respective times limited by the said act, shall forfeit five pounds, to be recovered in a summary way before two justices of the peace, one moiety thereof to be paid to the overseers of the poor of the parish where the offence shall be committed, and the other to the informer.

REQUIEM, in the Romish history, a mass sung for the rest of the soul of a person deceased.

RESCISSION, in the civil law, an action intended for the annulling or setting aside any contract, deed, &c.

RESCRIPT, an answer delivered by an emperor, or a pope, when consulted by particular persons on some difficult question or point of law, to serve as a decision thereof.

RESEDA, DYER'S-WEED, *Yellow-weed*, *Weld*, or *Wild-woad*: A genus of the order of trigynia, belonging to the dodecandria class of plants; and in the natural method ranking under the 54th order, *Miscellanea*. The calyx is monophyllous and partite; the petals lancinated; the capsule unilocular, and opening at the mouth. There are 11 species; of which the most remarkable is the luteola or common dyer's weed, growing naturally in waste places in many parts of Britain. The young leaves are often undulated; the stalk is a yard high, or more, terminated with a long naked spike of yellowish-green flowers: the plant is cultivated and much used for dyeing silk and wool of a yellow colour. The great recommendation of the plant is, that it will grow with very little trouble, without dung, and on the very worst soils. For this reason it is commonly sown with, or immediately after, barley or oats, without any additional care, except drawing a bush over it to harrow it in. The reaping of the corn does it little or no hurt, as it grows but little the first year; and the next summer it is pulled and dried like flax. Much care and nicety, however, is requisite, so as not to injure either the seed or stalk; or, which sometimes happens, damaging both, by letting it stand too long, or pulling it too green. To avoid these inconveniences, a better method of culture has been devised. This new method is to plough and harrow the ground very fine, without dung, as equally as possible, and then sowing about a gallon of seed, which is very small, upon an acre, some time in the month of August. In about two months it will be high enough to hoe, which must be carefully done, and the plants left about six inches asunder. In March it is to be hoed again, and this labour is to be repeated a third time in May. About the close of June, when the flower is in full vigour, and the stalk is become of a greenish-yellow, it should be pulled; a sufficient quantity of stems being left growing for seed till September. By this means the flower and stalk, both of them being carefully dried, will sell at a good price to the dyers, who employ it constantly, and in large quantities; add to this, that the seed being ripe and in perfect order, will yield a very considerable profit. In a tolerable year, when the seasons have not been unfavourable, the advantages derived from this vegetable will answer very well; but if the summer should be remarkably fine, and proper care is taken in getting it in, there will be

a very large produce upon an acre. The crop being, as has been shown, so early removed, the ground may be conveniently prepared for growing wheat the next year. Upon the whole, weld is in its nature a very valuable commodity in many respects, as it serves equally for woollen, linen, or silk; dyeing not only a rich and lasting yellow, but also, properly managed, all the different shades of yellow with brightness and beauty; and if these be previously dipped blue, they are by the weld changed into a very pleasing green, which our artists can also diversify into a great variety of shades.

RESEMBLANCE, and DISSIMILITUDE, the relations of likeness and difference among objects. See COMPARISON.

The connection that man hath with the beings around him, requires some acquaintance with their nature, their powers, and their qualities, for regulating his conduct. For acquiring a branch of knowledge so essential to our well-being, motives alone of reason and interest are not sufficient: nature hath providentially superadded curiosity, a vigorous propensity, which never is at rest. This propensity alone attaches us to every new object †; and † See *Nov.* incites us to compare objects, in order to discover their differences and resemblances.

Resemblance among objects of the same kind, and dissimilitude among objects of different kinds, are too obvious and familiar to gratify our curiosity in any degree: its gratification lies in discovering differences among things where resemblance prevails, and resemblances where difference prevails. Thus a difference in individuals of the same kind of plants or animals, is deemed a discovery, while the many particulars in which they agree are neglected; and in different kinds, any resemblance is greedily remarked, without attending to the many particulars in which they differ.

A comparison of the former neither tends to gratify our curiosity, nor to set the objects compared in a stronger light: two apartments in a palace, similar in shape, size, and furniture, make separately as good a figure as when compared; and the same observation is applicable to two similar compartments in a garden: on the other hand, oppose a regular building to a fall of water, or a good picture to a towering hill, or even a little dog to a large horse, and the contrast will produce no effect. But a resemblance between objects of different kinds, and a difference between objects of the same kind, have remarkably an enlivening effect. The poets, such of them as have a just taste, draw all their families from things that in the main differ widely from the principal subject; and they never attempt a contrast, but where the things have a common genus, and a resemblance in the capital circumstances: place together a large and a small-sized animal of the same species, the one will appear greater, the other less, than when viewed separately: when we oppose beauty to deformity, each makes a greater figure by the comparison. We compare the dresses of different nations with curiosity, but without surprise; because they have no such resemblance in the capital parts as to please us by contrasting the smaller parts. But a new cut of a sleeve, or of a pocket, enchants by its novelty; and, in opposition to the former fashion, raises some degree of surprise.

That resemblance and dissimilitude have an enliven-

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ing effect upon objects of sight, is made sufficiently evident; and that they have the same effect upon objects of the other senses, is also certain. Nor is that law confined to the external senses; for characters contrasted make a greater figure by the opposition: Iago, in the tragedy of Othello, says,

He hath a daily beauty in his life
That makes me ugly.

The character of a fop, and of a rough warrior, are nowhere more successfully contrasted than in Shakespeare:

Hotspur. My liege, I did deny no prisoners:
But I remember, when the fight was done,
When I was dry with rage, and extreme toil,
Breathless and faint, leaning upon my sword,
Came there a certain lord, neat, trimly dress'd,
Fresh as a bridegroom; and his chin, new-reap'd,
Show'd like a stubble-land at harvest-home.
He was perfum'd like a milliner;
And 'twixt his finger and his thumb he held
A pouncet-box, which ever and anon
He gave his nose:—and still he smil'd and talk'd;
And as the soldiers bare dead bodies by,
He call'd them untought knaves, unmannerly,
To bring a slovenly, unhandsome corse
Betwixt the wind and his nobility.
With many holiday and lady terms
He question'd me: among the rest, demanded
My pris'ners, in your majesty's behalf.
I then, all smarting with my wounds; being gall'd
To be so pester'd with a popinjay,
Out of my grief, and my impatience,
Answer'd, negligently, I know not what:
He should, or should not; for he made me mad,
To see him shine so brisk, and smell so sweet,
And talk so like a waiting gentlewoman,
Of guns, and drums, and wounds, (God save the mark!)
And telling me, the sovereign'st thing on earth
Was parmacidy for an inward bruise;
And that it was great pity, so it was,
'This villanous saltpetre should be digg'd
Out of the bowels of the harmless earth,
Which many a good, tall fellow had destroy'd
So cowardly; and but for these vile guns,
He would himself have been a soldier.—

First part, Henry IV. act 1. sc. 4

Passions and emotions are also enflamed by comparison. A man of high rank humbles the bystanders even to annihilate them in their own opinion: Cæsar, beholding the statue of Alexander, was greatly mortified, that now, at the age of 32, when Alexander died, he had not performed one memorable action.

Our opinions also are much influenced by comparison. A man whose opulence exceeds the ordinary standard is reputed richer than he is in reality; and wisdom or weakness, if at all remarkable in an individual, is generally carried beyond the truth.

The opinion a man forms of his present distress is heightened by contrasting it with his former happiness:

————— Could I forget
What I have been, I might the better bear
What I'm destin'd to. I'm not the first

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That have been wretched: but to think how much
I have been happier.

Southern's Innocent Adultery, act 2.

The distress of a long journey makes even an indifferent inn agreeable: and, in travelling, when the road is good, and the horseman well covered, a bad day may be agreeable, by making him sensible how snug he is.

The same effect is equally remarkable, when a man opposes his condition to that of others. A ship tossed about in a storm, makes the spectator reflect upon his own ease and security, and puts these in the strongest light.

A man in grief cannot bear mirth; it gives him a more lively notion of his unhappiness, and of course makes him more unhappy. Satan, contemplating the beauties of the terrestrial paradise, has the following exclamation:

With what delight could I have walk'd thee round,
If I could joy in ought, sweet interchange
Of hill and valley, rivers, woods, and plains,
Now land, now sea, and shores with forest crown'd,
Rocks, dens, and caves! but I in none of these
Find place or refuge; and the more I see
Pleasures about me, so much more I feel
Torment within me, as from the hateful siege
Of contraries: all good to me becomes
Bane, and in heav'n much worse would be my state.

Paradise Lost, book 9. l. 114.

The appearance of danger gives sometimes pleasure, sometimes pain. A timorous person upon the battlements of a high tower, is seized with fear, which even the consciousness of security cannot dissipate. But upon one of a firm head, this situation has a contrary effect: the appearance of danger heightens, by opposition, the consciousness of security, and consequently the satisfaction that arises from security; here the feeling resembles that above-mentioned, occasioned by a ship labouring in a storm.

The effect of magnifying or lessening objects by means of comparison is to be attributed to the influence of passion over our opinions. This will evidently appear by reflecting in what manner a spectator is affected, when a very large animal is for the first time placed beside a very small one of the same species. The first thing that strikes the mind is the difference between the two animals, which is so great as to occasion surprise; and this, like other emotions, magnifying its object, makes us conceive the difference to be the greatest that can be: we see, or seem to see, the one animal extremely little, and the other extremely large. The emotion of surprise arising from any unusual resemblance, serves equally to explain, why at first view we are apt to think such resemblance more entire than it is in reality. And it must be observed, that the circumstances of more and less, which are the proper subjects of comparison, raise a perception so indistinct and vague as to facilitate the effect described; we have no mental standard of great and little, nor of the several degrees of any attribute; and the mind, thus unrestrained, is naturally disposed to indulge its surprise to the utmost extent.

In exploring the operations of the mind, some of which are extremely nice and slippery, it is necessary

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to proceed with the utmost circumspection: and after all, seldom it happens that speculations of that kind afford any satisfaction. Luckily, in the present case, our speculations are supported by facts and solid argument. First, a small object of one species opposed to a great object of another, produces not, in any degree, that deception which is so remarkable when both objects are of the same species. The greatest disparity between objects of different kinds, is so common as to be observed with perfect indifference; but such disparity between the objects of the same kind being uncommon, never fails to produce surprise: and may we not fairly conclude, that surprise, in the latter case, is what occasions the deception, when we find no deception in the former? In the next place, if surprise be the sole cause of the deception, it follows necessarily that the deception will vanish as soon as the objects compared become familiar. This holds so unerringly, as to leave no reasonable doubt that surprise is the prime mover: our surprise is great, the first time a small lapdog is seen with a large mastiff; but when two such animals are constantly together, there is no surprise, and it makes no difference whether they be viewed separately or in company. We set no bounds to the riches of a man who has recently made his fortune; the surprising disproportion between his present and his past situation being carried to an extreme: but with regard to a family that for many generations hath enjoyed great wealth, the same false reckoning is not made. It is equally remarkable, that a trite simile has no effect: a lover compared to a moth scorching itself at the flame of a candle, originally a sprightly simile, has by frequent use lost all force; love cannot now be compared to fire, without some degree of disgust. It has been justly observed against Homer, that the lion is too often introduced into his similes; all the variety he is able to throw into them not being sufficient to keep alive the reader's surprise.

To explain the influence of comparison upon the mind, we have chosen the simplest case, viz. the first sight of two animals of the same kind, differing in size only; but to complete the theory, other circumstances must be taken in. And the next supposition we make, is where both animals, separately familiar to the spectator, are brought together for the first time. In that case, the effect of magnifying and diminishing is found remarkably greater than in that first mentioned; and the reason will appear upon analysing the operation: the first feeling we have is of surprise at the uncommon difference of two creatures of the same species; we are next sensible, that the one appears less, the other larger, than they did formerly; and that new circumstance increasing our surprise, makes us imagine a still greater opposition between the animals, than if we had formed no notion of them beforehand.

Let us make one other supposition, that the spectator was acquainted beforehand with one of the animals only; the lapdog, for example. This new circumstance will vary the effect; for, instead of widening the natural difference, by enlarging in appearance the one animal, and diminishing the other in proportion, the whole apparent alteration will rest upon the lapdog: the surprise to find it less than it appeared formerly, directs to it our whole attention, and makes us conceive it to be a most diminutive creature: the mastiff

in the mean time is quite overlooked. To illustrate this effect by a familiar example. Take a piece of paper or of linen tolerably white, and compare it with a pure white of the same kind: the judgment we formed of the first object is instantly varied; and the surprise occasioned by finding it less white than was thought, produceth a hasty conviction that it is much less white than it is in reality: withdrawing now the pure white, and putting in its place a deep black, the surprise occasioned by that new circumstance carries us to the other extreme, and makes us conceive the object first mentioned to be a pure white: and thus experience compels us to acknowledge, that our emotions have an influence even upon our eye-sight. This experiment leads to a general observation, that whatever is found more strange and beautiful than was expected, is judged to be more strange and beautiful than it is in reality. Hence a common artifice, to depreciate beforehand what we wish to make a figure in the opinion of others.

The comparisons employed by poets and orators are of the kind last mentioned; for it is always a known object that is to be magnified or lessened. The former is effected by likening it to some grand object, or by contrasting it with one of an opposite character. To effectuate the latter, the method must be reversed; the object must be contrasted with something superior to it, or likened to something inferior. The whole effect is produced upon the principal object; which by that means is elevated above its rank, or depressed below it.

In accounting for the effect that any unusual resemblance or dissimilitude hath upon the mind, no cause has been mentioned but surprise; and to prevent confusion, it was proper to discuss that cause first. But surprise is not the only cause of the effect described: another occurs, which operates perhaps not less powerfully, viz. a principle in human nature that lies still in obscurity, not having been unfolded by any writer, though its effects are extensive: and as it is not distinguished by a proper name, the reader must be satisfied with the following description. Every man who studies himself or others, must be sensible of a tendency or propensity in the mind to complete every work that is begun, and to carry things to their full perfection. There is little opportunity to display that propensity upon natural operations, which are seldom left imperfect; but in the operations of art it hath great scope: it impels us to persevere in our own work, and to wish for the completion of what another is doing: we feel a sensible pleasure when the work is brought to perfection; and our pain is not less sensible when we are disappointed. Hence our uneasiness when an interesting story is broke off in the middle, when a piece of music ends without a close, or when a building or garden is left unfinished. The same propensity operates in making collections; such as the whole works, good and bad, of any author. A certain person attempted to collect prints of all the capital paintings, and succeeded except as to a few. La Bruyere remarks, that an anxious search was made for these; not for their value, but to complete the set.

The final cause of the propensity is an additional proof of its existence. Human works are of no significance till they be completed; and reason is not always a sufficient counterbalance to indolence: some principle

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ciple over and above is necessary to excite our industry, and to prevent our stopping short in the middle of the course.

We need not lose time to describe the co-operation of the foregoing propensity with surprise, in producing the effect that follows any unusual resemblance or dissimilitude. Surprise first operates, and carries our opinion of the resemblance or dissimilitude beyond truth. The propensity we have been describing carries us still farther; for it forces upon the mind a conviction, that the resemblance or dissimilitude is complete. We need no better illustration, than the resemblance that is fancied in some pebbles to a tree or an insect; which resemblance, however faint in reality, is conceived to be wonderfully perfect. The tendency to complete a resemblance acting jointly with surprise, carries the mind sometimes so far, as even to presume upon future events. In the Greek tragedy entitled *Phineides*, those unhappy women seeing the place where it was intended they should be slain, cried out with anguish, "They now saw their cruel destiny had condemned them to die in that place, being the same where they had been exposed in their infancy."

Arist. Poet.
cap. 17.

The propensity to advance every thing to its perfection, not only co-operates with surprise to deceive the mind, but of itself is able to produce that effect. Of this we see many instances where there is no place for surprise; and the first we shall give is of resemblance. *Unumquodque eodem modo dissolvitur quo colligatum est*, is a maxim in the Roman law that has no foundation in truth; for tying and loosing, building and demolishing, are acts opposite to each other, and are performed by opposite means: but when these acts are connected by their relation to the same subject, their connection leads us to imagine a sort of resemblance between them, which by the foregoing propensity is conceived to be as complete as possible. The next instance shall be of contrast. Addison observes, "That the palest features look the most agreeable in white; that a face which is overflushed appears to advantage in the deepest scarlet; and that a dark complexion is not a little alleviated by a black hood." The foregoing propensity serves to account for these appearances; to make this evident, one of the cases shall suffice. A complexion, however dark, never approaches to black: when these colours appear together, their opposition strikes us; and the propensity we have to complete the opposition, makes the darkness of complexion vanish out of sight.

Spectator,
no 205.

The operation of this propensity, even where there is no ground for surprise, is not confined to opinion or conviction: so powerful it is, as to make us sometimes proceed to action, in order to complete a resemblance or dissimilitude. If this appear obscure, it will be made clear by the following instance. Upon what principle is the *lex talionis* founded, other than to make the punishment resemble the mischief? Reason dictates, that there ought to be a conformity or resemblance between a crime and its punishment; and the foregoing propensity impels us to make the resemblance as complete as possible. Titus Livius, under the influence of that propensity, accounts for a certain punishment by a resemblance between it and the crime, too subtle for common apprehension. Speaking of

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Mettus Fuffetius, the Alban general, who, for treachery to the Romans his allies, was sentenced to be torn to pieces by horses, he puts the following speech in the mouth of Tullus Hostilius, who decreed the punishment. "*Mette Fuffeti, inquit, si ipse discere posses fidem ac fœdera servare, vivo tibi ea disciplina a me adhibita esset. Nunc, quoniam tuum insanabile ingenium est, at tu tuo supplicio doce humanum genus ea sancta credere, quæ a te violata sunt. Ut igitur paulo ante animum inter Fidenatem Romanamque rem ancipitem gessisti, ita jam corpus passim distrabendum dabis.*" By the same influence, the sentence is often executed upon the very spot where the crime was committed. In the *Eletra* of Sophocles, Egistheus is dragged from the theatre into an inner room of the supposed palace, to suffer death where he murdered Agamemnon. Shakespeare, whose knowledge of nature is not less profound than extensive, has not overlooked this propensity:

"*Othello.* Get me some poison, Iago, this night. I'll not expostulate with her, lest her body and her beauty unprovide my mind again. This night, Iago."

"*Iago.* Do it not with poison; strangle her in her bed, even in the bed she hath contaminated."

"*Othello.* Good, good: the justice of it pleases: very good." *Othello, act 4. sc. 5.*

Persons in their last moments are generally seized with an anxiety to be buried with their relations. In the *Amynta* of Tasso, the lover, hearing that his mistress was torn to pieces by a wolf, expresses a desire to die the same death.

Upon the subject in general we have two remarks to add. The first concerns resemblance, which, when too entire, hath no effect, however different in kind the things compared may be. The remark is applicable to works of art only; for natural objects of different kinds have scarce ever an entire resemblance. To give an example in a work of art: Marble is a sort of matter very different from what composes an animal; and marble cut into a human figure, produces great pleasure by the resemblance: but if a marble statue be coloured like a picture, the resemblance is so entire as at a distance to make the statue appear a real person: we discover the mistake when we approach; and no other emotion is raised, but surprise occasioned by the deception: the figure still appears a real person, rather than an imitation; and we must use reflection to correct the mistake. This cannot happen in a picture; for the resemblance can never be so entire as to disguise the imitation.

The other remark belongs to contrast. Emotions make the greatest figure when contrasted in succession; but then the succession ought neither to be rapid, nor immoderately slow: if too slow, the effect of contrast becomes faint by the distance of the emotions; and if rapid, no single emotion has room to expand itself to its full size, but is stifled, as it were, in the birth by a succeeding emotion. The funeral oration of the bishop of Meux upon the duchess of Orleans, is a perfect hodge-podge of cheerful and melancholy representations, following each other in the quickest succession: opposite emotions are best felt in succession; but each emotion separately should be raised to its due pitch, before another be introduced.

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What is above laid down, will enable us to determine a very important question concerning emotions raised by the fine arts, viz. Whether ought similar emotions to succeed each other, or dissimilar? The emotions raised by the fine arts are for the most part too nearly related to make a figure by resemblance; and for that reason their succession ought to be regulated as much as possible by contrast. This holds confessedly in epic and dramatic compositions; and the best writers, led perhaps by taste more than by reasoning, have generally aimed at that beauty. It holds equally in music: in the same cantata all the variety of emotions that are within the power of music, may not only be indulged, but, to make the greatest figure, ought to be contrasted. In gardening, there is an additional reason for the rule: the emotions raised by that art, are at best so faint, that every artifice should be employed to give them their utmost vigour: a field may be laid out in grand, sweet, gay, neat, wild, melancholy scenes; and when these are viewed in succession, grandeur ought to be contrasted with neatness, regularity with wildness, and gaiety with melancholy, so as that each emotion may succeed its opposite: nay, it is an improvement to intermix in the succession rude uncultivated spots as well as unbounded views, which in themselves are disagreeable, but in succession heighten the feeling of the agreeable object; and we have nature for our guide, which in her most beautiful landscapes often intermixes rugged rocks, dirty marshes, and barren stony heaths. The greatest masters of music have the same view in their compositions: the second part of an Italian song seldom conveys any sentiment: and, by its harshness, seems purposely contrived to give a greater relish for the interesting parts of the composition.

A small garden, comprehended under a single view, affords little opportunity for that embellishment. Dissimilar emotions require different tones of mind; and therefore in conjunction can never be pleasant: gaiety and sweetness may be combined, or wildness and gloominess; but a composition of gaiety and gloominess is distasteful. The rude uncultivated compartment of furze and broom in Richmond garden, hath a good effect in the succession of objects; but a spot of that nature would be insufferable in the midst of a polished parterre or flower-plot. A garden, therefore, if not of great extent, admits not dissimilar emotions; and in ornamenting a small garden, the safest course is to confine it to a single expression. For the same reason, a landscape ought also to be confined to a single expression; and accordingly it is a rule in painting, that if the subject be gay, every figure ought to contribute to that emotion.

It follows from the foregoing train of reasoning, that a garden near a great city ought to have an air of solitude. The solitariness, again, of a waste country ought to be contrasted in forming a garden; no temples, no obscure walks; but *jets d'eau*, cascades, objects active, gay, and splendid. Nay, such a garden should in some measure avoid imitating nature, by taking on an extraordinary appearance of regularity and art, to show the busy hand of man, which in a waste country has a fine effect by contrast.

Wit and ridicule make not an agreeable mixture

with grandeur. Dissimilar emotions have a fine effect in a slow succession; but in a rapid succession, which approaches to co-existence, they will not be relished. In the midst of a laboured and elevated description of battle, Virgil introduces a ludicrous image, which is certainly out of its place:

Obvius ambustum torrem Chorinæus ab ara
Corripit, et venienti Ebuso plagamque ferenti
Occupat os flammis: illi ingens barba reluxit,
Nidoremque ambusta dedit. *Æn.* xii. 298.

E qual tauro ferito, il suo dolore
Verbo mugghiando e sospirando fuore.

Gierusal. cant. 4. st. 1.

It would however be too austere to banish altogether ludicrous images from an epic poem. This poem doth not always soar above the clouds: it admits great variety; and upon occasion can descend even to the ground without sinking. In its more familiar tones, a ludicrous scene may be introduced without impropriety. This is done by Virgil* in a foot-race: the circumstances of which, not excepting the ludicrous part, are copied from Homer†. After a fit of merriment, we are, it is true, the less disposed to the serious and sublime: but then, a ludicrous scene, by unbending the mind from severe application to more interesting subjects, may prevent fatigue, and preserve our relish entire.

RESEN, (Moses); a town on the Tigris, built by Nimrod; thought to be the *Larissa* of Xenophon; which see. But as *Larissa* is a name in imitation of a Greek city; and as there were no Greek cities, consequently no *Larissa* in Assyria, before Alexander the Great; it is probable that the Greeks asking of what city those were the ruins they saw, the Assyrians might answer, *Laresen*, "Of *Resen*;" which word Xenophon expressed by *Larissa*, a more familiar sound to a Greek ear, (Wells).

RESENTMENT, means a strong perception of good or ill, generally a deep sense of injury, and may be distinguished into *anger* and *revenge*. "By anger (says Archdeacon Paley), I mean the pain we suffer upon the receipt of an injury or affront, with the usual effects of that pain upon ourselves. By revenge, the inflicting of pain upon the person who has injured or offended us, farther than the just ends of punishment or reparation require. Anger prompts to revenge; but it is possible to suspend the effect when we cannot altogether quell the principle. We are bound also to endeavour to qualify and correct the principle itself. So that our duty requires two different applications of the mind: and for that reason anger and revenge should be considered separately." See REVENGE.

RESERVATION, in law, an action or clause whereby something is reserved, or secured to one's self.

Mental RESERVATION, a proposition which, strictly taken, and according to the natural import of the terms, is false; but, if qualified by something concealed in the mind, becomes true.

Mental reservations are the great refuge of religious hypocrites, who use them to accommodate their consciences with their interests: the Jesuits are zealous advocates for mental reservations; yet are they real lies, as including an intention to deceive.

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Reservation

* *Æneid*,
lib. v.
† *Iliad*, xxiii.
379.

Reserve
R. Sn.

RESERVE, in law, the same with reservation. See RESERVATION.

Body of RESERVE, or Corps de RESERVE, in military affairs, the third or last line of an army, drawn up for battle; so called because they are reserved to sustain the rest as occasion requires, and not to engage but in case of necessity.

RESERVOIR, a place where water is collected and reserved, in order to be conveyed to distant places through pipes, or supply a fountain or jet d'eau.

RESET, in law, the receiving or harbouring an outlawed person. See OUTLAWRY.

RESET of Theft, in Scots law. See LAW, n° cxxxvi. 29.

RESIDENCE, in the canon and common law, the abode of a person or incumbent upon his benefice; and his assiduity in attending on the same.

RESIDENT, a public minister, who manages the affairs of a kingdom or state, at a foreign court.

They are a class of public ministers inferior to ambassadors or envoys; but, like them, are under the protection of the law of nations.

RESIDUE, the remainder or balance of an account, debt, or obligation.

RESIGNATION, in general, signifies the implicit submission of ourselves, or of something we possess, to the will of another. In a religious sense it signifies a perfect submission, without discontent, to the will of God. See MORAL PHILOSOPHY, n° 119.

RESIN, in natural history, a viscid juice oozing either spontaneously, or by incision, from several trees, as the pine, fir, &c.—A premium for several years has been offered by the London Society for Encouraging Arts, &c. for discovering a mode of reducing the inflammable quality of resin, so as to adapt it to the purposes of making candles; but no such discovery has yet been made.

Elastic RESIN. See CAOUTCHOUC.

Gum RESIN, a mixture of gum and resin. See PHARMACY, n° 38.

Red Gum RESIN, is procured from the red gum tree, or eucalyptus resinifera; a tree so large and lofty as to exceed in size the English oak. The wood of the tree is brittle, and of little use but for firewood, from the large quantity of resinous gum it contains. The tree is distinguished by having pedunculated flowers, and an acute or pointed conical calyptra. To obtain the juice from this tree incisions are made in the trunk of it, and sometimes upwards of 60 gallons of red resinous juice have been obtained from one of them. "When this juice is dried, it becomes a very powerful astringent gum-resin, of a red colour, much resembling that known in the shops by the name of *kino*, and, for all medical purposes, fully as efficacious. Mr White administered it to a great number of patients in the dysentery, which prevailed much soon after the landing of the convicts, and in no one instance found it to fail. This gum-resin dissolves almost entirely in spirit of wine, to which it gives a blood-red tincture. Water dissolves about one sixth part only, and the watery solution is of a bright red. Both these solutions are powerfully astringent."

Yellow Gum RESIN, is procured from the yellow resin tree, which is as large as the English walnut tree. The properties of this resin are equal to those of the

most fragrant balsams. It exudes from the bark spontaneously, but more readily if incisions are made. The colour of it is yellow, and at first it is fluid; but after being inspissated in the sun, it becomes solid. When burnt on hot coals, it smells like a mixture of balsam of Tolu and benzoin, approaching somewhat to storax. "It is perfectly soluble in spirit of wine, but not in water, nor even in essential oil of turpentine, unless it be digested in a strong heat. The varnish which it makes with either is very weak, and of little use. With respect to its medicinal qualities, Mr White has found it, in many cases, a good pectoral medicine, and very balsamic. It is not obtainable in so great abundance as the red gum produced by the eucalyptus resinifera. The plant which produces the yellow gum seems to be perfectly unknown to botanists, but Mr White has communicated no specimens by which its genus or even class could be determined."

RESINOUS ELECTRICITY, is that kind of electricity which is produced by exciting bodies of the resinous kind, and which is generally negative. See ELECTRICITY *passim*.

RESISTANCE, or *Resisting Force*, in philosophy, denotes, in general, any power which acts in an opposite direction to another, so as to destroy or diminish its effect. See MECHANICS, HYDROSTATICS, and PNEUMATICS.

Of all the resistances of bodies to each, there is undoubtedly none of greater importance than the resistance or reaction of fluids. It is here that we must look for a theory of naval architecture, for the impulse of the air is our moving power, and this must be modified so as to produce every motion we want by the form and disposition of our sails; and it is the resistance of the water which must be overcome, that the ship may proceed in her course; and this must also be modified to our purpose, that the ship may not drive like a log to leeward, but on the contrary may ply to windward, that she may answer her helm briskly, and that she may be easy in all her motions on the surface of the troubled ocean. The impulse of wind and water makes them ready and indefatigable servants in a thousand shapes for driving our machines; and we should lose much of their service did we remain ignorant of the laws of their action: they would sometimes become terrible masters, if we did not fall upon methods of eluding or softening their attacks.

We cannot refuse the ancients a considerable knowledge of this subject. It was equally interesting to them as to us; and we cannot read the accounts of the naval exertions of Phœnicia, Carthage, and of Rome, exertions which have not been surpassed by any thing of modern date, without believing that they possessed much practical and experimental knowledge of this subject. It was not, perhaps, possessed by them in a strict and systematic form, as it is now taught by our mathematicians; but the master-builders, in their dockyards, did undoubtedly exercise their genius in comparing the forms of their finest ships, and in marking those circumstances of form and dimension which were in fact accompanied with the desirable properties of a ship, and thus framing to themselves maxims of naval architecture in the same manner as we do now. For we believe

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Appendix.

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believe that our naval architects are not disposed to grant that they have profited much by all the labours of the mathematicians. But the ancients had not made any great progress in the physicomathematical sciences, which consist chiefly in the application of calculus to the phenomena of nature. In this branch they could make none, because they had not the means of investigation. A knowledge of the motions and actions of fluids is accessible only to those who are familiarly acquainted with the fluxionary mathematics; and without this key there is no admittance. Even when possessed of this guide, our progress has been very slow, hesitating, and devious; and we have not yet been able to establish any set of doctrines which are susceptible of an easy and confident application to the arts of life. If we have advanced farther than the ancients, it is because we have come after them, and have profited by their labours, and even by their mistakes.

Sir Isaac Newton was the first (as far as we can recollect) who attempted to make the motions and actions of fluids the subject of mathematical discussion. He had invented the method of fluxions long before he engaged in his physical researches; and he proceeded in these *sua matheſi faciem præſerente*. Yet even with this guide he was often obliged to grope his way, and to try various bye-paths, in the hopes of obtaining a legitimate theory. Having exerted all his powers in establishing a theory of the lunar motions, he was obliged to rest contented with an approximation instead of a perfect solution of the problem which ascertains the motions of three bodies mutually acting on each other. This convinced him that it was in vain to expect an accurate investigation of the motions and actions of fluids, where millions of unseen particles combine their influence. He therefore cast about to find some particular case of the problem which would admit of an accurate determination, and at the same time furnish circumstances of analogy or resemblance sufficiently numerous for giving limiting cases, which should include between them those other cases that did not admit of this accurate investigation. And thus, by knowing the limit to which the case proposed did approximate, and the circumstance which regulated the approximation, many useful propositions might be deduced for directing us in the application of these doctrines to the arts of life.

He therefore figured to himself a hypothetical collection of matter which possessed the characteristic property of fluidity, viz. the *quæquidverſum* propagation of pressure, and the most perfect intermobility (pardon the uncouth term) of parts, and which formed a physical whole or aggregate, whose parts were connected by mechanical forces, determined both in degree and in direction, and such as rendered the determination of certain important circumstances of their motion susceptible of precise investigation. And he concluded, that the laws which he should discover in these motions must have a great analogy with the laws of the motions of real fluids: And from this hypothesis he deduced a series of propositions, which form the basis of almost all the theories of the impulse and resistance of fluids which have been offered to the public since his time.

It must be acknowledged, that the results of this theory agree but ill with experiment, and that, in the way in which it has been zealously prosecuted by subsequent

mathematicians, it proceeds on principles or assumptions which are not only gratuitous, but even false. But it affords such a beautiful application of geometry and calculus, that mathematicians have been as it were fascinated by it, and have published systems so elegant and so extensively applicable, that one cannot help lamenting that the foundation is so flimsy. John Bernoulli's theory, in his dissertation on the communication of motion, and Bouguer's in his *Traité du Navire*, and in his *Theorie du Manœuvre et de la Mâture des Vaisseaux*, must ever be considered as among the finest specimens of physicomathematical science which the world has seen. And, with all its imperfections, this theory still furnishes (as was expected by its illustrious author) many propositions of immense practical use, they being the limits to which the real phenomena of the impulse and resistance of fluids really approximate. So that when the law by which the phenomena deviate from the theory is once determined by a well chosen series of experiments, this hypothetical theory becomes almost as valuable as a true one. And we may add, that although Mr d'Alembert, by treading warily in the steps of Sir Isaac Newton in another route, has discovered a genuine and unexceptionable theory, the process of investigation is so intricate, requiring every finess of the most abstruse analysis, and the final equations are so complicated, that even their most expert author has not been able to deduce more than one simple proposition (which too was discovered by Daniel Bernoulli by a more simple process) which can be applied to any use. The hypothetical theory of Newton, therefore, continues to be the groundwork of all our practical knowledge of the subject.

We shall therefore lay before our readers a very short view of the theory, and the manner of applying it. We shall then show its defects (all of which were pointed out by its great author), and give an historical account of the many attempts which have been made to amend it or to substitute another: in all which we think it our duty to show, that Sir Isaac Newton took the lead, and pointed out every path which others have taken, if we except Daniel Bernoulli and d'Alembert; and we shall give an account of the chief sets of experiments which have been made on this important subject, in the hopes of establishing an empirical theory, which may be employed with confidence in the arts of life.

We know by experience that force must be applied to a body in order that it may move through a fluid, such as air or water; and that a body projected with any velocity is gradually retarded in its motion, and generally brought to rest. The analogy of nature makes us imagine that there is a force acting in the opposite direction, or opposing the motion, and that this force resides in, or is exerted by, the fluid. And the phenomena resemble those which accompany the known resistance of active beings, such as animals. Therefore we give to this supposed force the metaphorical name of RESISTANCE. We also know that a fluid in motion will hurry a solid body along with the stream, and that it requires force to maintain it in its place. A similar analogy makes us suppose that the fluid exerts force, in the same manner as when an active being impels the body before him; therefore we call this the IMPULSION of a Fluid. And as our knowledge of nature informs us that the mutual actions of bodies are in every

Resistance.

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But its utility is still very considerable.

9
The term resistance, as here applied, explained.

Resistance. every case equal and opposite, and that the observed change of motion is the only indication, characteristic, and measure, of the changing force, the forces are the same (whether we call them impulsions or resistances) when the relative motions are the same, and therefore depend entirely on these relative motions. The force, therefore, which is necessary for keeping a body immoveable in a stream of water, flowing with a certain velocity, is the same with what is required for moving this body with this velocity through stagnant water. To any one who admits the motion of the earth round the sun, it is evident that we can neither observe nor reason from a case of a body moving through still water, nor of a stream of water pressing upon or impelling a quiescent body.

A body in motion appears to be resisted by a stagnant fluid, because it is a law of mechanical nature that force must be employed in order to put any body in motion. Now the body cannot move forward without putting the contiguous fluid in motion, and force must be employed for producing this motion. In like manner, a quiescent body is impelled by a stream of fluid, because the motion of the contiguous fluid is diminished by this solid obstacle; the resistance, therefore, or impulse, no way differs from the ordinary communications of motion among solid bodies.

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Sir Isaac Newton, therefore, begins his theory of the resistance and impulse of fluids, by selecting a case where, although he cannot pretend to ascertain the motions themselves which are produced in the particles of a contiguous fluid, he can tell precisely their mutual ratios.

He supposes two systems of bodies such, that each body of the first is similar to a corresponding body of the second, and that each is to each in a constant ratio. He also supposes them to be similarly situated, that is, at the angles of similar figures, and that the homologous lines of these figures are in the same ratio with the diameters of the bodies. He farther supposes, that they attract or repel each other in similar directions, and that the accelerating connecting forces are also proportional; that is, the forces in the one system are to the corresponding forces in the other system in a constant ratio, and that, in each system taken apart, the forces are as the squares of the velocities directly, and as the diameters of the corresponding bodies, or their distances, inversely.

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tion.

This being the case, it legitimately follows, that if similar parts of the two systems are put into similar motions, in any given instant, they will continue to move similarly, each correspondent body describing similar curves, with proportional velocities: For the bodies being similarly situated, the forces which act on a body in one system, arising from the combination of any number of adjoining particles, will have the same direction with the force acting on the corresponding body in the other system, arising from the combined action of the similar and similarly directed forces of the adjoining correspondent bodies of the other system; and these compound forces will have the same ratio with the simple forces which constitute them, and will be as the squares of the velocities directly, and as the distances, or any homologous lines inversely; and therefore the chords of curvature, having the direction of the centripetal or centrifugal forces, and similarly inclined to the tangents

of the curves described by the corresponding bodies, will have the same ratio with the distances of the particles. The curves described by the corresponding bodies will therefore be similar, the velocities will be proportional, and the bodies will be similarly situated at the end of the first moment, and exposed to the action of similar and similarly situated centripetal or centrifugal forces; and this will again produce similar motions during the next moment, and so on for ever. All this is evident to any person acquainted with the elementary doctrines of curvilinear motions, as delivered in the theory of physical astronomy.

From this fundamental proposition, it clearly follows, that if two similar bodies, having their homologous lines proportional to those of the two systems, be similarly projected among the bodies of those two systems with any velocities, they will produce similar motions in the two systems, and will themselves continue to move similarly; and therefore will, in every subsequent moment, suffer similar diminutions or retardations. If the initial velocities of projection be the same, but the densities of the two systems, that is, the quantities of matter contained in an equal bulk or extent, be different, it is evident that the quantities of motion produced in the two systems in the same time will be proportional to the densities; and if the densities are the same, and uniform in each system, the quantities of motion produced will be as the squares of the velocities, because the motion communicated to each corresponding body will be proportional to the velocity communicated, that is, to the velocity of the impelling body; and the number of similarly situated particles which will be agitated will also be proportional to this velocity. Therefore, the whole quantities of motion produced in the same moment of time will be proportional to the squares of the velocities. And lastly, if the densities of the two systems are uniform, or the same through the whole extent of the systems, the number of particles impelled by similar bodies will be as the surfaces of these bodies.

Now the diminutions of the motions of the projected bodies are (by Newton's third law of motion) equal to the motions produced in the systems; and these diminutions are the measures of what are called the resistances opposed to the motions of the projected bodies. Therefore, combining all these circumstances, the resistances are proportional to the similar surfaces of the moving bodies, to the densities of the systems through which the motions are performed, and to the squares of the velocities, jointly.

We cannot form to ourselves any distinct notion of a fluid, otherwise than as a system of small bodies, or a collection of particles, similarly or symmetrically arranged, the centres of each being situated in the angles of regular solids. We must form this notion of it, whether we suppose, with the vulgar, that the particles are little globules in mutual contact, or, with the partisans of corpuscular attractions and repulsions, we suppose the particles kept at a distance from each other by means of these attractions and repulsions mutually balancing each other. In this last case, no other arrangement is consistent with a quiescent equilibrium: and in this case, it is evident, from the theory of curvilinear motions, that the agitations of the particles will always be such, that the connecting forces, in actual exertion, will

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Resistance will be proportional to the squares of the velocities directly, and to the chords of curvature having the direction of the forces inversely.

From these premises, therefore, we deduce, in the strictest manner, the demonstration of the leading theorem of the resistance and impulse of fluids; namely,

⁷⁴ **PROP. I.** The resistances, and (by the third law of motion), the impulsions of fluids on similar bodies, are proportional to the surfaces of the solid bodies, to the densities of the fluids, and to the squares of the velocities, jointly.

We must now observe, that when we suppose the particles of the fluid to be in mutual contact, we may either suppose them elastic or unelastic. The motion communicated to the collection of elastic particles must be double of what the same body, moving in the same manner, would communicate to the particles of an unelastic fluid. The impulse and resistance of elastic fluids must therefore be double of those of unelastic fluids.—

⁷⁵ But we must caution our readers not to judge of the elasticity of fluids by their sensible compressibility. A diamond is incomparably more elastic than the finest football, though not compressible in any sensible degree.— It remains to be decided, by well chosen experiments, whether water be not as elastic as air. If we suppose, with Boscovich, the particles of perfect fluids to be at a distance from each other, we shall find it difficult to conceive a fluid void of elasticity. We hope that the theory of their impulse and resistance will suggest experiments which will decide this question, by pointing out what ought to be the absolute impulse or resistance in either case. And thus the fundamental proposition of the impulse and resistance of fluids, taken in its proper meaning, is susceptible of a rigid demonstration, relative to the only distinct notion that we can form of the internal constitution of a fluid. We say, *taken in its proper meaning*; namely, that the impulse or resistance of fluids is a pressure, opposed and measured by another pressure, such as a pound weight, the force of a spring, the pressure of the atmosphere, and the like. And we apprehend that it would be very difficult to find any legitimate demonstration of this leading proposition different from this, which we have now borrowed from Sir Isaac Newton, Prop. 23. B. II. *Princip.* We acknowledge that it is prolix and even circuitous: but in all the attempts made by his commentators and their copyists to simplify it, we see great defects of logical argument, or assumption of principles, which are not only gratuitous, but inadmissible. We shall have occasion, as we proceed, to point out some of these defects; and doubt not but the illustrious author of this demonstration had exercised his uncommon patience and sagacity in similar attempts, and was dissatisfied with them all.

Before we proceed further, it will be proper to make a general remark, which will save a great deal of discussion. Since it is a matter of universal experience, that every action of a body on others is accompanied by an equal and contrary re-action; and since all that we can demonstrate concerning the resistance of bodies during their motions through fluids proceeds on this supposition, (the resistance of the body being assumed as equal and opposite to the sum of motions communicated to the particles of the fluid, estimated in the direction of the bodies motion), we are intitled to proceed in the

contrary order, and to consider the impulsions which each of the particles of fluid exerts on the body at rest, as equal and opposite to the motion which the body would communicate to that particle if the fluid were at rest, and the body were moving equally swift in the opposite direction. And therefore the whole impulsion of the fluid must be conceived as the measure of the whole motion which the body would thus communicate to the fluid. It must therefore be also considered as the measure of the resistance which the body, moving with the same velocity, would sustain from the fluid. When, therefore, we shall demonstrate any thing concerning the impulsion of a fluid, estimated in the direction of its motion, we must consider it as demonstrated concerning the resistance of a quiescent fluid to the motion of that body, having the same velocity in the opposite direction. The determination of these impulsions being much easier than the determination of the motions communicated by the body to the particles of the fluid, this method will be followed in most of the subsequent discussions.

The general proposition already delivered is by no means sufficient for explaining the various important phenomena observed in the mutual actions of solids and fluids. In particular, it gives us no assistance in ascertaining the modifications of this resistance or impulse, which depend on the shape of the body and the inclination of its impelled or resisted surface to the direction of the motion. Sir Isaac Newton found another hypothesis necessary; namely, that the fluid should be so extremely rare that the distance of the particles may be incomparably greater than their diameters. This additional condition is necessary for considering their actions as so many separate collisions or impulsions on the solid body. Each particle must be supposed to have abundant room to rebound, or otherwise escape, after having made its stroke, without sensibly affecting the situations and motions of the particles which have not yet made their stroke: and the motion must be so swift as not to give time for the sensible exertion of their mutual forces of attractions and repulsions.

Keeping these conditions in mind, we may proceed to determine the impulsions made by a fluid on surfaces of every kind: And the most convenient method to pursue in this determination, is to compare them all either with the impulse which the *same surface* would receive from the fluid impinging on it perpendicularly, or with the impulse which the *same stream of fluid* would make when coming perpendicularly on a surface of such extent as to occupy the whole stream.

It will greatly abbreviate language, if we make use ¹⁶ of a few terms in an appropriated sense. Terms explained.

By a *stream*, we shall mean a quantity of fluid moving in one direction, that is, each particle moving in parallel lines; and the *breadth* of the stream is a line perpendicular to all these parallels.

A *filament* means a portion of this stream of very small breadth, and it consists of an indefinite number of particles following one another in the same direction, and successively impinging on, or gliding along, the surface of the solid body.

The *basis* of any surface exposed to a stream of fluid, is that portion of a plane perpendicular to the stream, which is covered or protected from the action of the stream by the surface exposed to its impulse. Thus the basis of a sphere exposed to a stream of fluid is its great circle.

Resistance. circle, whose plane is perpendicular to the stream. If
 Plate BC (fig. 1.) be a plane surface exposed to the action
 CCCCXXVI of a stream of fluid, moving in the direction DC, then
 BR, or SE, perpendicular to DC, is its base.

Direct impulse shall express the energy or action of the particle or filament, or stream of fluid, when meeting the surface perpendicularly, or when the surface is perpendicular to the direction of the stream.

Absolute impulse means the actual pressure on the impelled surface, arising from the action of the fluid, whether striking the surface perpendicularly or obliquely; or it is the force impressed on the surface, or tendency to motion which it acquires, and which must be opposed by an equal force in the opposite direction, in order that the surface may be maintained in its place. It is of importance to keep in mind, that this pressure is always perpendicular to the surface. It is a proposition founded on universal and uncontradicted experience, that the mutual actions of bodies on each other are always exerted in a direction perpendicular to the touching surfaces. Thus, it is observed, that when a billiard ball A is struck by another B, moving in any direction whatever, the ball A always moves off in the direction perpendicular to the plane which touches the two balls in the point of mutual contact, or point of impulse. This inductive proposition is supported by every argument which can be drawn from what we know concerning the forces which connect the particles of matter together, and are the immediate causes of the communication of motion. It would employ much time and room to state them here; and we apprehend that it is unnecessary: for no reason can be assigned why the pressure should be in any particular oblique direction. If any one should say that the impulse will be in the direction of the stream, we have only to desire him to take notice of the effect of the rudder of a ship. This shows that the impulse is not in the direction of the stream, and is therefore in some direction transverse to the stream.—He will also find, that when a plane surface is impelled obliquely by a fluid, there is no direction in which it can be supported but the direction perpendicular to itself. It is quite safe, in the mean time, to take it as an experimental truth. We may, perhaps, in some other part of this work, give what will be received as a rigorous demonstration.

Relative or effective impulse means the pressure on the surface estimated in some particular direction. Thus BC (fig. 1.) may represent the sail of a ship, impelled by the wind blowing in the direction DC. GO may be the direction of the ship's keel, or the line of her course. The wind strikes the sail in the direction GH parallel to DC; the sail is urged or pressed in the direction GI, perpendicular to BC. But we are interested to know what tendency this will give the ship to move in the direction GO. This is the effective or relative impulse. Or BC may be the transverse section of the sail of a common wind-mill. This, by the construction of the machine, can move only in the direction GP, perpendicular to the direction of the wind; and it is only in this direction that the impulse produces the desired effect. Or BC may be half of the prow of a punt or lighter, riding at anchor by means of the cable DC, attached to the prow C. In this case, GQ, parallel to DC, is that part of the absolute impulse which is employed in straining the cable.

The angle of incidence is the angle FGC contained between the direction of the stream FG and the plane BC.

The angle of obliquity is the angle OGC contained between the plane and the direction GO, in which we wish to estimate the impulse.

PROP. II. The direct impulse of a fluid on a plane surface, is to its absolute oblique impulse on the same surface, as the square of the radius to the square of the sine of the angle of incidence. 17

Let a stream of fluid, moving in the direction DC, (fig. 1.), act on the plane BC. With the radius CB describe the quadrant ABE; draw CA perpendicular to CE, and draw MNBS parallel to CE. Let the particle F, moving in the direction FG, meet the plane in G, and in FG produced take GH to represent the magnitude of the direct impulse, or the impulse which the particle would exert on the plane AC, by meeting it in V. Draw GI and HK perpendicular to BC, and HI perpendicular to GI. Also draw BR perpendicular to DC.

The force GH is equivalent to the two forces GI and GK; and GK being in the direction of the plane has no share in the impulse. The absolute impulse, therefore, is represented by GI; the angle GHI is equal to FGC, the angle of incidence; and therefore GH is to GI as radius to the sine of the angle of incidence: Therefore the direct impulse of each particle or filament is to its absolute oblique impulse as radius to the sine of the angle of incidence. But further, the number of particles or filaments which strike the surface AC, is to the number of those which strike the surface BC as AC to NC: for all the filaments between LA and MB go past the oblique surface BC without striking it. But BC : NC = rad. : sin. NBC, = rad. : sin. FGC, = rad. : sin. incidence. Now the whole impulse is as the impulse of each filament, and as the number of filaments exerting equal impulses jointly; therefore the whole direct impulse on AC is to the whole absolute impulse on BC, as the square of radius to the square of the sine of the angle of incidence.

Let S express the extent of the surface, i the angle of incidence, o the angle of obliquity, v the velocity of the fluid, and d its density. Let F represent the direct impulse, f the absolute oblique impulse, and ϕ the relative or effective impulse: And let the tabular sines and cosines be considered as decimal fractions of the radius unity.

This proposition gives us $F : f = R^2 : \text{Sin.}^2 i$, = 1 : $\text{Sin.}^2 i$, and therefore $f = F \times \text{Sin.}^2 i$. Also, because impulses are in the proportion of the extent of surface similarly impelled, we have, in general, $f = F S \times \text{Sin.}^2 i$.

The first who published this theorem was Pardies, in his *Oeuvres de Mathématique*, in 1673. We know that Newton had investigated the chief propositions of the Principia before 1670.

PROP. III. The direct impulse on any surface is to the effective oblique impulse on the same surface, as the cube of radius to the solid, which has for its base the square of the sine of incidence, and the sine of obliquity for its height. 18

For,

Resistance.

For, when GH represents the direct impulse of a particle, GI is the absolute oblique impulse, and GO is the effective impulse in the direction GO: Now GI is to GO as radius to the sine of GIO, and GIO is the complement of IGO, and is therefore equal to CGO, the angle of obliquity.

Therefore $f : \varphi = R : \text{Sin. } O$.

But $F : f = R^2 : \text{Sin. }^2 i$

Therefore $F : \varphi = R^2 : \text{Sin. }^2 i \times \text{Sin. } O$ and

$\varphi = F \times \text{Sin. } i \times \text{Sin. } O$.

19
Proportion
of the di-
rect im-
pulse to the
effective
oblique im-
pulse.

Cor.—The direct impulse on any surface is to the effective oblique impulse in the direction of the stream, as the cube of radius to the cube of the sine of incidence. For draw IQ and GP perpendicular to GH, and IP perpendicular to GP; then the absolute impulse GI is equivalent to the impulse GQ in the direction of the stream, and GP, which may be called the transverse impulse. The angle GIQ is evidently equal to the angle GHI, or FGC, the angle of incidence.

Therefore $f : \varphi = GI : GQ = R : \text{Sin. } i$.

But $F : f = R^2 : \text{Sin. }^2 i$.

Therefore $F : \varphi = R^2 : \text{Sin. }^2 i$.

And $\varphi = F \times \text{Sin. }^2 i$.

20
Impulse on
a surface in
motion.

Before we proceed further, we shall consider the impulse on a surface which is also in motion. This is evidently a frequent and an important case. It is perhaps the most frequent and important: It is the case of a ship under sail, and of a wind or water-mill at work.

Plate
CCCCXXXVI. n° 2.) which is moving parallel to itself in the direction and with the velocity DF: It is required to determine the impulse?

Nothing is more easy: The mutual actions of bodies depend on their relative motions only. The motion DE of the fluid relative to BC, which is also in motion, is compounded of the real motion of the fluid and the opposite to the real motion of the body. Therefore produce FD till Df = DF, and complete the parallelogram Df e E, and draw the diagonal De. The impulse on the plane is the same as if the plane were at rest, and every particle of the fluid impelled it in the direction and with the velocity De; and may therefore be determined by the foregoing proposition. This proposition applies to every possible case; and we shall not bestow more time on it, but reserve the important modification of the general proposition for the cases which shall occur in the practical applications of the whole doctrine of the impulse and resistance of fluids.

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Proportion
of the di-
rect im-
pulse of
given
stream to
the effec-
tive oblique
impulse in
the same
direction.

PROP. IV. The direct impulse of a stream of fluid, whose breadth is given, is to its oblique effective impulse in the direction of the stream, as the square of radius to the square of the sine of the angle of incidence.

For the number of filaments which occupy the oblique plane BC, would occupy the portion NC of a perpendicular plane, and therefore we have only to compare the perpendicular impulse on any point V with the effective impulse made by the same filament FV on the oblique plane at G. Now GH represents the impulse which this filament would make at V; and GQ is the effective impulse of the same filament at G, estimated in the direction GH of the stream; and GH is to GQ as $G H^2$ to $G I^2$, that is, as rad.^2 to fin.^2 .

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Cor. 1. The effective impulse in the direction of the stream on any plane surface BC, is to the direct impulse on its base BR or SE, as the square of the sine of the angle of incidence to the square of the radius.

2. If an isosceles wedge ACB (fig. 2.) be exposed to a stream of fluid moving in the direction of its height CD, the impulse on the sides is to the direct impulse on the base as the square of half the base AD to the square of the side AC, or as the square of the sine of half the angle of the wedge to the square of the radius. For it is evident, that in this case the two transverse impulses, such as GP in fig. 1, balance each other, and the only impulse which can be observed is the sum of the two impulses, such as GQ of fig. 1, which are to be compared with the impulses on the two halves AD, DB of the base. Now $AC : AB = \text{rad.} : \text{fin. } ACD$, and ACD is equal to the angle of incidence.

Therefore, if the angle ACB is a right angle, and ACD is half a right angle, the square of AC is twice the square of AD, and the impulse on the sides of a rectangular wedge is half the impulse on its base.

Also, if a cube ACBE (fig. 3.) be exposed to a stream moving in a direction perpendicular to one of its sides, and then to a stream moving in a direction perpendicular to one of its diagonal planes, the impulse in the first case will be to the impulse in the second as $\sqrt{2}$ to 1. Call the perpendicular impulse on a side F, and the perpendicular impulse on its diagonal plane f, and the effective oblique impulse on its sides φ —we have

$F : f = AC : AB = 1 : \sqrt{2}$, and

$f : \varphi = AC^2 : AD^2 = 2 : 1$. Therefore

$F : \varphi = 2 : \sqrt{2} = \sqrt{2} : 1$, or

very nearly as 10 to 7.

The same reasoning will apply to a pyramid whose base is a regular polygon, and whose axis is perpendicular to the base. If such a pyramid is exposed to a stream of fluid moving in the direction of the axis, the direct impulse on the base is to the effective impulse on the pyramid, as the square of the radius to the square of the sine of the angle which the axis makes with the sides of the pyramid.

And, in like manner, the direct impulsion on the base of a right cone is to the effective impulsion on the conical surface, as the square of the radius to the square of the sine of half the angle at the vertex of the cone. This is demonstrated, by supposing the cone to be a pyramid of an infinite number of sides.

We may in this manner compare the impulse on any polygonal surface with the impulse on its base, by comparing apart the impulses on each plane with those in their corresponding bases, and taking their sum.

And we may compare the impulse on a curved surface with that on its base, by resolving the curved surface into elementary planes, each of which is impelled by an elementary filament of the stream.

The following beautiful proposition, given by Le Seur and Jaquier, in their Commentary on the second Book of Newton's Principia, with a few examples of its application, will suffice for any further account of this theory.

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PROP. V.—Let ADB (fig. 4.) be the section of a surface of simple curvature, such as is the surface of curved surface of a cylinder. Let this be exposed to the action of a fluid moving in the direction AC. Let BC be the section base.

N

Resistance.

section of the plane (which we have called its base), perpendicular to the direction of the stream. In AC produced, take any length CG; and on CG describe the semicircle CHG, and complete the rectangle BCGO. Through any point Q of the curve draw ED parallel to AC, and meeting BC and OG in Q and P. Let DF touch the curve in D, and draw the chord GH parallel to DF, and HKM perpendicular to CG, meeting ED in M. Suppose this to be done for every point of the curve ADB, and let LMN be the curve which passes through all the points of intersection of the parallels EDP and the corresponding perpendiculars HKM.

The effective impulse on the curve surface ADB in the direction of the stream, is to its direct impulse on the base BC as the area BCNL is to the rectangle BCGO.

Draw $edqmp$ parallel to EP and extremely near it. The arch Dd of the curve may be conceived as the section of an elementary plane, having the position of the tangent DF. The angle EDF is the angle of incidence of the filament ED de . This is equal to CGH, because ED, DF, are parallel to CG, GH; and (because CHG is a semicircle) CH is perpendicular to GH. Also CG : CH = CH : CK, and CG : CK = CG² : CH² = rad.² : sin.², CGH = rad.² : sin.² incid. Therefore if CG, or its equal DP, represent the direct impulse on the point Q of the base, CK, or its equal QM, will represent the effective impulse on the point D of the curve. And thus, QqpP will represent the direct impulse of the filament on the element Qq of the base, and QqmM will represent the effective impulse of the same filament on the element Dd of the curve. And, as this is true of the whole curve ADB, the effective impulse on the whole curve will be represented by the area BCNML; and the direct impulse on the base will be represented by the rectangle BCGO; and therefore the impulse on the curve-surface is to the impulse on the base as the area BLMNC is to the rectangle BOGC.

It is plain, from the construction, that if the tangent to the curve at A is perpendicular to AC, the point N will coincide with G. Also, if the tangent to the curve at B is parallel to AC, the point L will coincide with B.

Whenever, therefore, the curve ADB is such that an equation can be had to exhibit the general relation between the abscissa AR and the ordinate DR, we shall deduce an equation which exhibits the relation between the absciss CK and the ordinate KM of the curve LMN; and this will give us the ratio of BLNC to BOGC.

Thus, if the surface is that of a cylinder, so that the curve BDA b (fig. 5.), which receives the impulse of the fluid, is a semicircle, make CG equal to AC, and construct the figure as before. The curve BMG is a parabola, whose axis is CG, whose vertex is G, and whose parameter is equal to CG. For it is plain, that CG = DC, and GH = CQ, = MK. And CG × GK = GH² = KM². That is, the curve is such, that the square of the ordinate KM is equal to the rectangle of the abscissa GK and a constant line GC; and it is therefore a parabola whose vertex is G. Now, it is well

known, that the parabolic area BMGC is two thirds of the parallelogram BCGO. Therefore the impulse on the quadrant ADB is two thirds of the impulse on the base BC. The same may be said of the quadrant Adb and its base $c b$. Therefore, *The impulse on a cylinder or half cylinder is two thirds of the direct impulse on its transverse plane through the axis; or it is two thirds of the direct impulse on one side of a parallelopiped of the same breadth and height.*

PROP. VI.—If the body be a solid generated by the revolution of the figure BDAC (fig. 4.) round the axis AC; and if it be exposed to the action of a stream of fluid moving in the direction of the axis AC; then the effective impulse in the direction of the stream is to the direct impulse on its base, as the solid generated by the revolution of the figure BLMNC round the axis CN to the cylinder generated by the revolution of the rectangle BOGC.

This scarcely needs a demonstration. The figure ADBLMNA is a section of these solids by a plane passing through the axis; and what has been demonstrated of this section is true of every other, because they are all equal and similar. It is therefore true of the whole solids, and (their base) the circle generated by the revolution of BC round the axis AC.

Hence we easily deduce, that *The impulse on a sphere is one half of the direct impulse on its great circle, or on the base of a cylinder of equal diameter.*

For in this case the curve BMN (fig. 5.) which generates the solid expressing the impulse on the sphere is a parabola, and the solid is a parabolic conoid. Now this conoid is to the cylinder generated by the revolution of the rectangle BOGC round the axis CG, as the sum of all the circles generated by the revolution of ordinates to the parabola such as KM, to the sum of as many circles generated by the ordinates to the rectangle such as KT; or as the sum of all the squares described on the ordinates KM to the sum of as many squares described on the ordinates KT. Draw BG cutting MK in S. The square on MK is to the square on BC or TK as the abscissa GK to the abscissa GC (by the nature of the parabola), or as SK to BC; because SK and BC are respectively equal to GK and GC. Therefore the sum of all the squares on ordinates, such as MK, is to the sum of as many squares on ordinates, such as TK, as the sum of all the lines SK to the sum of as many lines TK; that is, as the triangle BGC to the rectangle BOGC; that is, as one to two: and therefore the impulse on the sphere is one half of the direct impulse on its great circle.

From the same construction we may very easily deduce a very curious and seemingly useful truth, that of all conical bodies having the circle whose diameter is AB (fig. 2.) for its base, and FD for its height, the one which sustains the smallest impulse or meets with the smallest resistance is the frustum AGHB of a cone ACB so constructed, that EF being taken equal to ED, EA is equal to EC. This frustum, though more capacious than the cone AFB of the same height, will be less resisted.

Also, if the solid generated by the revolution of BDAC (fig. 4.) have its anterior part covered with a frustum of a cone generated by the lines Da, aA, forming

Resistance. forming the angle at a of 135 degrees; this solid, though more capacious than the included solid, will be less resisted.

And, from the same principles, Sir Isaac Newton determined the form of the curve ADB which would generate the solid which, of all others of the same length and base, should have the least resistance.

These are curious and important deductions, but are not introduced here, for reasons which will soon appear.

The reader cannot fail to observe, that all that we have hitherto delivered on this subject, relates to the comparison of different impulses or resistances. We have always compared the oblique impulsions with the direct, and by their intervention we compare the oblique impulsions with each other. But it remains to give absolute measures of some individual impulsion; to which, as to an unit, we may refer every other. And as it is by their pressure that they become useful or hurtful, and they must be opposed by other pressures, it becomes extremely convenient to compare them all with that pressure with which we are most familiarly acquainted, the pressure of gravity.

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Different
impulsions
compared
with the
pressure of
gravity.

The manner in which the comparison is made, is this. When a body advances in a fluid with a known velocity, it puts a known quantity of the fluid into motion (as is supposed) with this velocity; and this is done in a known time. We have only to examine what weight will put this quantity of fluid into the same motion, by acting on it during the same time. This weight is conceived as equal to the resistance. Thus, let us suppose that a stream of water, moving at the rate of eight feet *per* second, is perpendicularly obstructed by a square foot of solid surface held fast in its place. Conceiving water to act in the manner of the hypothetical fluid now described, and to be without elasticity, the whole effect is the gradual annihilation of the motion of eight cubic feet of water moving eight feet in a second. And this is done in a second of time. It is equivalent to the gradually putting eight cubic feet of water into motion with this velocity; and doing this by acting uniformly during a second. What weight is able to produce this effect? The weight of eight feet of water, acting during a second on it, will, as is well known, give it the velocity of thirty-two feet *per* second; that is, four times greater. Therefore, the weight of the fourth part of eight cubic feet, that is, the weight of two cubic feet, acting during a second, will do the same thing, or the weight of a column of water whose base is a square foot, and whose height is two feet. This will not only produce this effect in the same time with the impulsion of the solid body, but it will also do it by the same degrees, as any one will clearly perceive, by attending to the gradual acceleration of the mass of water urged by $\frac{1}{4}$ of its weight, and comparing this with the gradual production or extinction of motion in the fluid by the progress of the resisted surface.

Now it is well known that 8 cubic feet of water, by falling one foot, which it will do in one-fourth of a second, will acquire the velocity of eight feet *per* second by its weight; therefore the force which produces the same effect in a whole second is one-fourth of this. This force is therefore equal to the weight of a column of

water, whose base is a square foot, and whose height is two feet; that is, twice the height necessary for acquiring the velocity of the motion by gravity. The conclusion is the same whatever be the surface that is resisted, whatever be the fluid that resists, and whatever be the velocity of the motion. In this inductive and familiar manner we learn, that *the direct impulse or resistance of an unelastic fluid on any plane surface, is equal to the weight of a column of the fluid having the surface for its base, and twice the fall necessary for acquiring the velocity of the motion for its height*: and if the fluid is considered as elastic, the impulse or resistance is twice as great. See Newt. *Princip.* B. II. prop. 35. and 38.

It now remains to compare this theory with experiment. Many have been made, both by Sir Isaac Newton and by subsequent writers. It is much to be lamented, that in a matter of such importance, both to the philosopher and to the artist, there is such a disagreement in the results with each other. We shall mention the experiments which seem to have been made with the greatest judgment and care. Those of Sir Isaac Newton were chiefly made by the oscillations of pendulums in water, and by the descent of balls both in water and in air. Many have been made by Mariotte (*Traité de Mouvement des Eaux*). Gravesande has published, in his *System of Natural Philosophy*, experiments made on the resistance or impulsions on solids in the midst of a pipe or canal. They are extremely well contrived, but are on so small a scale that they are of very little use. Daniel Bernoulli, and his pupil Professor KRAFT, have published, in the *Comment. Acad. Petropol.* experiments on the impulse of a stream or vein of water from an orifice or tube: These are of great value. The Abbé Bossut has published others of the same kind in his *Hydrodynamique*. Mr Robins has published, in his *New Principles of Gunnery*, many valuable experiments on the impulse and resistance of air. The Chev. de Borda, in the *Mem. Acad. Paris*, 1763 and 1767, has given experiments on the resistance of air and also of water, which are very interesting. The most complete collection of experiments on the resistance of water are those made at the public expence by a committee of the academy of sciences, consisting of the marquis de Condorcet, Mr d'Alembert, Abbé Bossut, and others. The Chev. de Buat, in his *Hydraulique*, has published some most curious and valuable experiments, where many important circumstances are taken notice of, which had never been attended to before, and which give a view of the subject totally different from what is usually taken of it. Don George d'Ulloa, in his *Examine Maritime*, has also given some important experiments, similar to those adduced by Bougeur in his *Manœuvre des Vaisseaux*, but leading to very different conclusions. All these should be consulted by such as would acquire a practical knowledge of this subject. We must content ourselves with giving their most general and steady results. Such as,

1. It is very consonant to experiment that the resistances are proportional to the squares of the velocities. When the velocities of water do not exceed a few feet *per* second, no sensible deviation is observed. In very small velocities the resistances are sensibly greater than in this proportion, and this excess is plainly owing to the viscosity or imperfect fluidity of water. Sir Isaac

Resistance. Newton has shown that the resistance arising from this cause is constant, or the same in every velocity; and when he has taken off a certain part of the total resistance, he found the remainder was very exactly proportionable to the square of the velocity. His experiments to this purpose were made with balls a very little heavier than water, so as to descend very slowly; and they were made with his usual care and accuracy, and may be depended on.

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Causes of
its disagree-
ment with
them.

In the experiments made with bodies floating on the surface of water, there is an addition to the resistance arising from the inertia of the water. The water heaps up a little on the anterior surface of the floating body, and is depressed behind it. Hence arises a hydrostatical pressure, acting in concert with the true resistance. A similar thing is observed in the resistance of air, which is condensed before the body and rarefied behind it, and thus an additional resistance is produced by the unbalanced elasticity of the air; and also because the air, which is *actually* displaced, is denser than common air. These circumstances cause the resistances to increase faster than the squares of the velocities: but, even independent of this, there is an additional resistance arising from the tendency to rarefaction behind a very swift body; because the pressure of the surrounding fluid can only make the fluid fill the space left with a determined velocity.

We have had occasion to speak of this circumstance more particularly under GUNNERY and PNEUMATICS, when considering very rapid motions. Mr Robins had remarked that the velocity at which the observed resistance of the air began to increase so prodigiously, was that of about 1100 or 1200 feet per second, and that this was the velocity with which air would rush into a void. He concluded, that when the velocity was greater than this, the ball was exposed to the additional resistance arising from the unbalanced statical pressure of the air, and that this constant quantity behaved to be added to the resistance arising from the air's inertia in all greater velocities. This is very reasonable: But he imagined that in smaller velocities there was no such unbalanced pressure. But this cannot be the case: for although in smaller velocities the air will still fill up the space behind the body, it will not fill it up with air of the same density. This would be to suppose the motion of the air into the deserted place to be instantaneous. There must therefore be a rarefaction behind the body, and a pressure backward; arising from unbalanced elasticity, independent of the condensation on the anterior part. The condensation and rarefaction are caused by the same thing, *viz.* the limited elasticity of the air. Were this infinitely great, the smallest condensation before the body would be instantly diffused over the whole air, and so would the rarefaction, so that no pressure of unbalanced elasticity would be observed; but the elasticity is such as to propagate the condensation with the velocity of sound only, *i. e.* the velocity of 1142 feet per second. Therefore this additional resistance does not commence precisely at this velocity, but is sensible in all smaller velocities, as is very justly observed by Euler. But we are not yet able to ascertain the law of its increase, although it is a problem which seems susceptible of a tolerably accurate solution.

Precisely similar to this is the resistance to the motion of floating bodies, arising from the accumulation or gorging up of the water on their anterior surface, and its depression behind them. Were the gravity of the water infinite, while its inertia remains the same, the wave raised up at the prow of a ship would be instantly diffused over the whole ocean, and it would therefore be infinitely small, as also the depression behind the poop. But this wave requires time for its diffusion; and while it is not diffused, it acts by hydrostatical pressure. We are equally unable to ascertain the law of variation of this part of the resistance, the mechanism of waves being but very imperfectly understood. The height of the wave in the experiments of the French academy could not be measured with sufficient precision (being only observed *en passant*) for ascertaining its relation to the velocity. The Chev. Buat attempted it in his experiments, but without success. This must evidently make a part of the resistance in all velocities: and it still remains an undecided question, "What relation it bears to the velocities?" When the solid body is wholly buried in the fluid, this accumulation does not take place, or at least not in the same way: It may, however, be observed. Every person may recollect, that in a very swift running stream a large stone at the bottom will produce a small swell above it; unless it lies very deep, a nice eye may still observe it. The water, on arriving at the obstacle, glides past it in every direction, and is deflected on all hands; and therefore what passes over it is also deflected upwards, and causes the water over it to rise above its level. The nearer that the body is to the surface, the greater will be the perpendicular rise of the water, but it will be less diffused; and it is uncertain whether the *whole* elevation will be greater or less. By the whole elevation we mean the area of a perpendicular section of the elevation by a plane perpendicular to the direction of the stream. We are rather disposed to think that this area will be greatest when the body is near the surface. D'Ulloa has attempted to consider this subject scientifically; and is of a very different opinion, which he confirms by the single experiment to be mentioned by and by. Mean time, it is evident, that if the water which glides past the body cannot fall in behind it with sufficient velocity for filling up the space behind, there must be a void there; and thus a hydrostatical pressure must be superadded to the resistance arising from the inertia of the water. All must have observed, that if the end of a stick held in the hand be drawn slowly through the water, the water will fill the place left by the stick, and there will be no curled wave: but if the motion be very rapid, a hollow trough or gutter is left behind, and is not filled up till at some distance from the stick, and the wave which forms its sides is very much broken and curled. The writer of this article has often looked into the water from the poop of a second rate man of war when she was sailing 11 miles per hour, which is a velocity of 16 feet per second nearly; and he not only observed that the back of the rudder was naked for about two feet below the load water-line, but also that the trough or wake made by the ship was filled up with water which was broken and foaming to a considerable depth, and to a considerable distance from the vessel: There must therefore have been

stance. a void. He never saw the wake perfectly transparent (and therefore completely filled with water) when the velocity exceeded 9 or 10 feet per second. While this broken water is observed, there can be no doubt that there is a void and an additional resistance. But even when the space left by the body, or the space behind a still body exposed to a stream, is completely filled, it may not be filled sufficiently fast, and there may be (and certainly is, as we shall see afterwards) a quantity of water behind the body, which is moving more slowly away than the rest, and therefore hangs in some shape by the body, and is dragged by it, increasing the resistance. The quantity of this must depend partly on the velocity of the body or stream, and partly on the rapidity with which the surrounding water comes in behind. This last must depend on the pressure of the surrounding water. It would appear, that when this adjoining pressure is very great, as must happen when the depth is great, the augmentation of resistance now spoken of would be less. Accordingly this appears in Newton's experiments, where the balls were less retarded as they were deeper under water.

These experiments are so simple in their nature, and were made with such care, and by a person so able to detect and appreciate every circumstance, that they deserve great credit, and the conclusions *legitimately* drawn from them deserve to be considered as physical laws. We think that the present deduction is unexceptionable: for in the motion of balls, which hardly descended, their preponderancy being hardly sensible, the effect of depth must have borne a very great proportion to the whole resistance, and must have greatly influenced their motions; yet they were observed to fall as if the resistance had no way depended on the depth.

The same thing appears in Borda's experiments, where a sphere which was deeply immersed in the water was less resisted than one that moved with the same velocity near the surface; and this was very constant and regular in a course of experiments. D'Ulloa, however, affirms the contrary: He says that the resistance of a board, which was a foot broad, immersed one foot in a stream moving two feet per second, was $15\frac{1}{2}$ lbs. and the resistance to the same board, when immersed 2 feet in a stream moving $1\frac{1}{2}$ feet per second (in which case the surface was 2 feet), was $26\frac{1}{2}$ pounds (A).

We are very sorry that we cannot give a proper account of this theory of resistance by Don George Juan D'Ulloa, an author of great mathematical reputation, and the inspector of the marine academies in Spain. We have not been able to procure either the original or the French translation, and judge of it only by an extract by Mr Prony in his *Architecture Hydraulique*, § 868. &c. The theory is enveloped (according to Mr Prony's custom) in the most complicated expressions, so that the physical principles are kept almost out of sight. When accommodated to the simplest possible case, it is nearly as follows.

Let o be an elementary orifice or portion of the surface of the side of a vessel filled with a heavy fluid, and let b be its depth under the horizontal surface of the

fluid. Let δ be the density of the fluid, and ϕ the accelerative power of gravity, = 32 feet velocity acquired in a second.

It is known, says he, that the water would flow out at this hole with the velocity $u = \sqrt{2\phi b}$, and $u^2 = 2\phi b$ and $b = \frac{u^2}{2\phi}$. It is also known that the pressure p on

the orifice o is $\phi o \delta b = \phi o \delta \frac{u^2}{2\phi} = \frac{1}{2} \phi o u^2$.

Now let this little surface o be supposed to move with the velocity v . The fluid would meet it with the velocity $u + v$, or $u - v$, according as it moved in the opposite or in the same direction with the efflux. In the equation $p = \frac{1}{2} \phi o u^2$, substitute $u \pm v$ for u , and we have the pressure on $o = p = \frac{\phi o}{2} (u \pm v)^2 = \frac{\phi o}{2} (\sqrt{2\phi b} \pm v)^2$.

This pressure is a weight, that is, a mass of matter m actuated by gravity ϕ , or $p = \phi m$, and $m = \delta o (\sqrt{b} \pm \frac{v}{\sqrt{2\phi}})^2$.

This elementary surface being immersed in a stagnant fluid, and moved with the velocity v , will sustain on one side a pressure $\delta o (\sqrt{b} + \frac{v}{\sqrt{2\phi}})^2$ and on the other side a pressure $\delta o (\sqrt{b} - \frac{v}{\sqrt{2\phi}})^2$; and the sensible resistance will be the difference of these two pressures, which is $\delta o 4 \sqrt{b} \frac{v}{\sqrt{2\phi}}$, or $\delta o 4 \sqrt{b} \frac{v}{8}$, that is, $\frac{\delta o \sqrt{b} v}{2}$, because $\sqrt{2\phi} = 8$; a quantity which is

in the subduplicate ratio of the depth under the surface of the fluid, and the simple ratio of the velocity of the resisted surface jointly.

There is nothing in experimental philosophy more certain than that the resistances are very nearly in the duplicate ratio of the velocities; and we cannot conceive by what experiments the ingenious author has supported this conclusion.

But there is, besides, what appears to us to be an essential defect in this investigation. The equation exhibits no resistance in the case of a fluid without weight.

Now a theory of the resistance of fluids should exhibit the retardation arising from inertia alone, and should distinguish it from that arising from any other cause: and moreover, while it assigns an ultimate sensible resistance proportional (*ceteris paribus*) to the simple velocity, it assumes as a first principle that the pressure p is as $u \pm v$. It also gives a false measure of the statical pressures; for these (in the case of bodies immersed in our waters at least) are made up of the pressure of the incumbent water, which is measured by b , and the pressure of the atmosphere, a constant quantity.

Whatever reason can be given for setting out with the principle that the pressure on the little surface o , moving with the velocity u , is equal to $\frac{1}{2} \phi o (u \pm v)^2$, makes it indispensably necessary to take for the velocity

u .

(A) There is something very unaccountable in these experiments. The resistances are much greater than any other author has observed.

Resistance. u , not that with which water would issue from a hole whose depth under the surface is h , but the velocity with which it will issue from a hole whose depth is $h + 33$ feet. Because the pressure of the atmosphere is equal to that of a column of water 33 feet high: for this is the acknowledged velocity with which it would rush in to the void left by the body. If therefore this velocity (which does not exist) has any share in the effort, we must have for the fluxion of pressure not $\frac{4\sqrt{b}v}{\sqrt{2\phi}}$ but $\frac{4\sqrt{b+33}v}{\sqrt{2\phi}}$. This would not

only give pressure or resistances many times exceeding those that have been observed in our experiments, but would also totally change the proportions which this theory determines. It was at any rate improper to embarrass an investigation, already very intricate, with the pressure of gravity, and with two motions of efflux, which do not exist, and are necessary for making the pressures in the ratio of $u+v^2$ and $u-v^2$.

Mr Prony has been at no pains to inform his readers of his reasons for adopting this theory of resistance, so contrary to all received opinions, and to the most distinct experiments. Those of the French academy, made under greater pressures, gave a much smaller resistance; and the very experiments adduced in support of this theory are extremely deficient, wanting fully $\frac{1}{4}$ of what the theory requires. The resistances by experiment were $15\frac{1}{2}$ and $26\frac{1}{2}$, and the theory required $20\frac{1}{2}$ and 39 . The equation, however, deduced from the theory is greatly deficient in the expression of the pressures caused by the accumulation and depression, stating the heights of them as $= \frac{v^2}{2\phi}$. They can never be so high,

because the heaped up water flows off at the sides, and it also comes in behind by the sides; so that the pressure is much less than half the weight of a column whose height is $\frac{v^2}{2\phi}$; both because the accumulation and de-

pression are less at the sides than in the middle, and because, when the body is wholly immersed, the accumulation is greatly diminished. Indeed in this case the final equation does not include their effects, though as real in this case as when part of the body is above water.

Upon the whole, we are somewhat surprised that an author of D'Ulloa's eminence should have adopted a theory so unnecessarily and so improperly embarrassed with foreign circumstances; and that Mr Prony should have inserted it with the explanation by which he was to abide, in a work destined for practical use.

This point, or the effect of deep immersion, is still much contested; and it is a received opinion, by many not accustomed to mathematical researches, that the resistance is greater in greater depths. This is assumed as an important principle by Mr Gordon, author of *A Theory of Naval Architecture*; but on very vague and slight grounds; and the author seems unacquainted with the manner of reasoning on such subjects. It shall be considered afterwards.

With these corrections, it may be asserted that theory and experiment agree very well in this respect, and that the resistance may be asserted to be in the duplicate ratio of the velocity.

We have been more minute on this subject, because it is the leading proposition in the theory of the ac-

tion of fluids. Newton's demonstration of it takes no notice of the manner in which the various particles of the fluid are put into motion, or the motion which each in particular acquires. He only shows, that if there be nothing concerned in the communication but pure inertia, the sum total of the motions of the particles, estimated in the direction of the bodies motion, or that of the stream, will be in the duplicate ratio of the velocity. It was therefore of importance to show that this part of the theory was just. To do this, we had to consider the effect of every circumstance which could be combined with the inertia of the fluid. All these had been foreseen by that great man, and are most briefly, though perspicuously, mentioned in the last scholium to prop. 36. B. II.

2. It appears from a comparison of all the experiments, that the impulses and resistances are very nearly in the proportion of the surfaces. They appear, however, to increase somewhat faster than the surfaces. The Chevalier Borda found that the resistance, with the same velocity, to a surface of

9 inches	}	was	{	9	}	instead of	{	9
16				17,535				16
36				42,750				36
81				104,737				81

The deviation in these experiments from the theory increases with the surface, and is probably much greater in the extensive surfaces of the sails of ships and wind-mills, and the hulls of ships.

3. The resistances do by no means vary in the duplicate ratio of the sines of the angles of incidence.

As this is the most interesting circumstance, having a chief influence on all the particular modifications of the resistance of fluids, and as on this depends the whole theory of the construction and working of ships, and the action of water on our most important machines, and seems most immediately connected with the mechanism of fluids, it merits a very particular consideration. We cannot do a greater service than by rendering more generally known the excellent experiments of the French academy.

Fifteen boxes or vessels were constructed, which were two feet wide, and two feet deep, and four feet long. One of them was a parallelopiped of these dimensions; the others had prows of a wedge-form, the angle ACB (fig. 7.) varying by 12° degrees from 12° to 180° ; so that the angle of incidence increased by 6° from one to another. These boxes were dragged across a very large basin of smooth water (in which they were immersed two feet) by means of a line passing over a wheel connected with a cylinder, from which the actuating weight was suspended. The motion became perfectly uniform after a very little way; and the time of passing over 96 French feet with this uniform motion was very carefully noted. The resistance was measured by the weight employed, after deducting a certain quantity (properly estimated) for friction, and for the accumulation of the water against the anterior surface. The results of the many experiments are given in the following table; where column 1st contains the angle of the prow, column 2d contains the resistance as given by the preceding theory, column 3d contains the resistance exhibited in the experiments, and column 4th contains the deviation of the experiment from the theory.

Resistance.

I.	II.	III.	IV.
180	10000	10000	0
168	9890	9893	+3
156	9568	9578	+10
144	9045	9084	+39
132	8346	8446	+100
120	7509	7719	+210
108	6545	6925	+380
96	5523	6148	+625
84	4478	5433	+955
72	3455	4800	+1345
60	2500	4404	+1904
48	1654	4240	+2586
36	955	4142	+3187
24	432	4063	+3631
12	109	3999	+3890

The resistance to 1 square foot, French measure, moving with the velocity of 2,56 feet per second, was very nearly 7,625 pounds French.

Reducing these to English measures, we have the surface = 1,1363 feet, the velocity of the motion equal to 2,7263 feet per second, and the resistance equal to 8,234 pounds avoirdupois. The weight of a column of fresh water of this base, and having for its height the fall necessary for communicating this velocity, is 8,264 pounds avoirdupois. The resistances to other velocities were accurately proportional to the squares of the velocities.

There is great diversity in the value which different authors have deduced for the absolute resistance of water from their experiments. In the value now given nothing is taken into account but the inertia of the water. The accumulation against the forepart of the box was carefully noted, and the statical pressure backwards, arising from this cause, was subtracted from the whole resistance to the drag. There had not been a sufficient variety of experiments for discovering the share which tenacity and friction produced; so that the number of pounds set down here may be considered as somewhat superior to the mere effects of the inertia of the water. We think, upon the whole, that it is the most accurate determination yet given of the resistance to a body in motion: but we shall afterwards see reasons for believing, that the impulse of a running stream having the same velocity is somewhat greater; and this is the form in which most of the experiments have been made.

Also observe, that the resistance here given is that to a vessel two feet broad and deep and four feet long. The resistance to a plane of two feet broad and deep would probably have exceeded this in the proportion of 15,22 to 14,54, for reasons we shall see afterwards.

From the experiments of Chevalier Buat, it appears that a body of one foot square, French measure, and two feet long, having its centre 15 inches under water, moving three French feet per second, sustained a pressure of 14,54 French pounds, or 15,63 English. This reduced in the proportion of 3^2 to $2,56^2$ gives 11,43 pounds, considerably exceeding the 8,24.

Mr Bouguer, in his *Manœuvre des Vaisseaux*, says, that he found the resistance of sea-water to a velocity of one foot to be 23 ounces *poids des Marc*.

The Chevalier Borda found the resistance of sea-water to the face of a cubic foot, moving against the water one foot per second, to be 21 ounces nearly. But

this experiment is complicated: the wave was not deduced; and it was not a plane, but a cube.

Don George d'Ulloa found the impulse of a stream of sea-water, running two feet per second on a foot square, to be $15\frac{1}{2}$ pounds English measure. This greatly exceeds all the values given by others.

From these experiments we learn, in the first place, ³⁵Consequently that the direct resistance to a motion of a plane surface ³⁵through water, is very nearly equal to the weight of a column of water having that surface for its base, and for its height the fall producing the velocity of the motion. This is but one half of the resistance determined by the preceding theory. It agrees, however, very well with the best experiments made by other philosophers on bodies totally immersed or surrounded by the fluid; and sufficiently shows, that there must be some fallacy in the principles or reasoning by which this result of the theory is supposed to be deduced. We shall have occasion to return to this again.

But we see that the effects of the obliquity of incidence deviate enormously from the theory, and that this deviation increases rapidly as the acuteness of the prow increases. In the prow of 60° the deviation is nearly equal to the whole resistance pointed out by the theory, and in the prow of 12° it is nearly 40 times greater than the theoretical resistance.

The resistance of the prow of 90° should be one half the resistance of the base. We have not such a prow; but the medium between the resistance of the prow of 96 and 84 is 5790, instead of 500.

These experiments are very conform to those of other authors on plane surfaces. Mr Robins found the resistance of the air to a pyramid of 45° , with its apex foremost, was to that of its base as 1000 to 1411, instead of one to two. Chevalier Borda found the resistance of a cube, moving in water in the direction of the side, was to the oblique resistance, when it was moved in the direction of the diagonal, in the proportion of $5\frac{1}{2}$ to 7; whereas it should have been that of $\sqrt{2}$ to 1, or of 10 to 7 nearly. He also found, that a wedge whose angle was 90° , moving in air, gave for the proportion of the resistances of the edge and base 7281:10000, instead of 5000:10000. Also when the angle of the wedge was 60° , the resistances of the edge and base were 52 and 100, instead of 25 and 100.

In short, in all the cases of oblique plane surfaces, the resistances were greater than those which are assigned by the theory. The theoretical law agrees tolerably with observation in large angles of incidence, that is, in incidences not differing very far from the perpendicular; but in more acute prows the resistances are more nearly proportional to the sines of incidence than to their squares.

The academicians deduced from these experiments an expression of the general value of the resistance, which corresponds tolerably well with observation. Thus let x be the complement of the half angle of the prow, and let P be the direct pressure or resistance, with an incidence of 90° , and p the effective oblique pressure:

then $p = P \times \cos^2 x + 3,153 \left(\frac{x}{60}\right)^{3,25}$. This gives for a prow of 12° an error in defect about $\frac{1}{100}$, and in larger angles it is much nearer the truth; and this is exact enough for any practice.

This

Resistance This is an abundantly simple formula; but if we introduce it in our calculations of the resistances of curvilinear prows, it renders them so complicated as to be almost useless; and what is worse, when the calculation is completed for a curvilinear prow, the resistance which results is found to differ widely from experiment. This shows that the motion of the fluid is so modified by the action of the most prominent part of the prow, that its impulse on what succeeds is greatly affected, so that we are not allowed to consider the prow as composed of a number of parts, each of which is affected as if it were detached from all the rest.

As the very nature of naval architecture seems to require curvilinear forms, in order to give the necessary strength, it seemed of importance to examine more particularly the deviations of the resistances of such prows from the resistances assigned by the theory. The academicians therefore made vessels with prows of a cylindrical shape; one of these was a half cylinder, and the other was one-third of a cylinder, both having the same breadth, viz. two feet, the same depth, also two feet, and the same length, four feet. The resistance of the half cylinder was to the resistance of the perpendicular prow in the proportion of 13 to 25, instead of being as 13 to 19.5. The Chevalier Borda found nearly the same ratio of the resistances of the half cylinder, and its diametrical plane when moved in air. He also compared the resistances of two prisms or wedges, of the same breadth and height. The first had its sides plane, inclined to the base in angles of 60° : the second had its sides portions of cylinders, of which the planes were the chords, that is, their sections were arches of circles of 60° . Their resistances were as 133 to 100, instead of being as 133 to 220, as required by the theory; and as the resistance of the first was greater in proportion to that of the base than the theory allows, the resistance of the last was less.

Mr Robins found the resistance of a sphere moving in air to be to the resistance of its great circle as 1 to 2.27; whereas theory requires them to be as 1 to 2. He found, at the same time, that the absolute resistance was greater than the weight of a cylinder of air of the same diameter, and having the height necessary for acquiring the velocity. It was greater in the proportion of 49 to 40 nearly.

Borda found the resistance of the sphere moving in water to be to that of its great circle as 1000 to 2508, and it was one-ninth greater than the weight of the column of water whose height was that necessary for producing the velocity. He also found the resistance of air to the sphere was to its resistance to its great circle as 1 to 2.45.

³⁶
The theory gives some resistances too small and others too great.

It appears, on the whole, that the theory gives the resistance of oblique plane surfaces too small, and that of curved surfaces too great; and that it is quite unfit for ascertaining the modifications of resistance arising from the figure of the body. The most prominent part of the prow changes the action of the fluid on the succeeding parts, rendering it totally different from what it would be were that part detached from the rest, and exposed to the stream with the same obliquity. It is of no consequence, therefore, to deduce any formula from the valuable experiments of the French academy. The experiments themselves are of great importance, because they give us the impulses on plane surfaces with

every obliquity. They therefore put it in our power to select the most proper obliquity in a thousand important cases. By appealing to them, we can tell what is the proper angle of the sail for producing the greatest impulse in the direction of the ship's course; or the best inclination of the sail of a wind-mill, or the best inclination of the float of a water-wheel, &c. &c. These deductions will be made in their proper places in the course of this work. We see also, that the deviation from the simple theory is not very considerable till the obliquity is great; and that, in the inclinations which other circumstances would induce us to give to the floats of water-wheels, the sails of wind-mills, and the like, the results of the theory are sufficiently agreeable to experiment, for rendering this theory of very great use in the construction of machines. Its great defect is in the impulses on curved surfaces, which puts a stop to our improvement of the science of naval architecture, and the working of ships.

But it is not enough to detect the faults of this theory: we should try to amend it, or to substitute another. It is a pity that so much ingenuity should have been thrown away in the application of a theory so defective. Mathematicians were seduced, as has been already observed, by the opportunity which it gave for exercising their calculus, which was a new thing at the time of publishing this theory. Newton saw clearly the defects of it, and makes no use of any part of it in his subsequent discussions, and plainly has used it merely as an introduction, in order to give some general notions in a subject quite new, and to give a demonstration of one leading truth, viz. the proportionality of the impulses to the squares of the velocities. While we profess the highest respect for the talents and labours of the great mathematicians who have followed Newton in this most difficult research, we cannot help being sorry that some of the greatest of them continued to attach themselves to a theory which he neglected, merely because it afforded an opportunity of displaying their profound knowledge of the new calculus, of which they were willing to ascribe the discovery to Leibnitz. It has been in a great measure owing to this that we have been so late in discovering our ignorance of the subject. Newton had himself pointed out all the defects of this theory; and he set himself to work to discover another which should be more conformable to the nature of things, retaining only such deductions from the other as his great sagacity assured him would stand the test of experiment. Even in this he seems to have been mistaken by his followers. He retained the proportionality of the resistance to the square of the velocity. This they have endeavoured to demonstrate in a manner conformable to Newton's determination of the oblique impulses of fluids; and under the cover of the agreement of this proposition with experiment, they introduced into mechanics a mode of expression, and even of conception, which is inconsistent with all accurate notions on these subjects. Newton's proposition was, that the motions communicated to the fluid, and therefore the motions lost by the body, in equal times, were as the squares of the velocities; and he conceived these as proper measures of the resistances. It is a matter of experience, that the forces or pressures by which a body must be supported in opposition to the impulses of fluids, are in this very proportion. In determining the

³⁷
Its defect pointed out by Newton.

proportion

distance. proportion of the direct and oblique resistances of plane surfaces, he considers the resistances to arise from mutual collisions of the surface and fluid, repeated at intervals of time too small to be perceived. But in making this comparison, he has no occasion whatever to consider this repetition; and when he assigns the proportion between the resistance of a cone and of its base, he, in fact, assigns the proportion between two simultaneous and instantaneous impulses. But the mathematicians who followed him have considered this repetition as equivalent to an augmentation of the initial or first impulse; and in this way have attempted to demonstrate that the resistances are as the squares of the velocities. When the velocity is double, each impulse is double, and the number in a given time is double; therefore, say they, the resistance, and the force which will withstand it, is quadruple; and observation confirms their deduction: yet nothing is more gratuitous and illogical. It is very true that the resistance, conceived as Newton conceives it, the loss of motion sustained by a body moving in the fluid, is quadruple; but the instantaneous impulse, and the force which can withstand it, is, by all the laws of mechanics, only double. What is the force which can withstand a double impulse? Nothing but a double impulse. Nothing but impulse can be opposed to impulse; and it is a gross misconception to think of stating any kind of comparison between impulse and pressure. It is this which has given rise to much jargon and false reasoning about the force of percussion. This is stated as infinitely greater than any pressure, and as equivalent to a pressure infinitely repeated. It forced the abettors of these doctrines at last to deny the existence of all pressures whatever, and to assert that all motion, and tendency to motion, was the result of impulse. The celebrated Euler, perhaps the first mathematician, and the lowest philosopher, of this century, says, "since motion and impulse are seen to exist, and since we see that by means of motion pressure may be produced, as when a body in motion strikes another, or as when a body moving in a curved channel presses upon it, merely in consequence of its curvilinear motion, and the exertion of a centrifugal force; and since Nature is most wisely economical in all her operations; it is absurd to suppose that pressure, or tendency to motion, has any other origin; and it is the business of a philosopher to discover by what motions any observed pressure is produced." Whenever any pressure is observed, such as the pressure of gravity, of magnetism, of electricity, of condensed air, nay, of a spring, and of elasticity and cohesion themselves, however disparate, nay, opposite, the philosopher must immediately cast about, and contrive a set of motions (creating *pro re nata* the movers) which will produce a pressure like the one observed. Having pleased his fancy with this, he cries out "υπνωα" "this will produce the pressure;" *et frustra fit per plura quod fieri potest per pauciora*, "therefore in this way the pressure is produced." Thus the vortices of Descartes are brought back in triumph, and have produced vortices without number, which fill the universe with motion and pressure.

Such bold attempts to overturn long-received doctrines in mechanics, could not be received without much criticism and opposition; and many able dissertations appeared from time to time in defence of the common doctrines. In consequence of the many objections to

the comparison of pure pressure with pure percussion or impulse, John Bernoulli and others were at last obliged to assert that there were no perfectly hard bodies in nature, nor could be, but that all bodies were elastic; and that in the communication of motion by percussion, the velocities of both bodies were gradually changed by their mutual elasticity acting during the finite but imperceptible time of the collision. This was, in fact, giving up the whole argument, and banishing percussion, while their aim was to get rid of pressure. For what is elasticity but a pressure? and how shall it be produced? To act in this instance, must it arise from a still smaller impulse? But this will require another elasticity, and so on without end.

These are all legitimate consequences of this attempt to state a comparison between percussion and pressure. Numberless experiments have been made to confirm the statement; and there is hardly an itinerant-lecturing showman who does not exhibit among his apparatus Gravesande's machine (Vol. I. plate xxxv. fig. 4). But nothing affords so specious an argument as the experimented proportionality of the impulse of fluids to the square of the velocity. Here is every appearance of the accumulation of an infinity of minute impulses, in the known ratio of the velocity, each to each, producing pressures which are in the ratio of the squares of the velocities.

The pressures are observed; but the impulses or percussions, whose accumulation produces these pressures, are only supposed. The rare fluid, introduced by Newton for the purpose already mentioned, either does not exist in nature, or does not act in the manner we have said, the particles making their impulse, and then escaping through among the rest without affecting their motion. We cannot indeed say what may be the proportion between the diameter and the distance of the particles. The first may be incomparably smaller than the second, even in mercury, the densest fluid which we are familiarly acquainted with; but although they do not touch each other, they act nearly as if they did, in consequence of their mutual attractions and repulsions. We have seen air a thousand times rarer in some experiments than in others, and therefore the distance of the particles at least ten times greater than their diameters; and yet, in this rare state, it propagates all pressures or impulses made on any part of it to a great distance, almost in an instant. It cannot be, therefore, that fluids act on bodies by impulse. It is very possible to conceive a fluid advancing with a flat surface against the flat surface of a solid. The very first and superficial particles may make an impulse; and if they were annihilated, the next might do the same: and if the velocity were double, these impulses would be double, and would be withstood by a double force, and not a quadruple, as is observed: and this very circumstance, that a quadruple force is necessary, should have made us conclude that it was not to impulse that this force was opposed. The first particles having made their stroke, and not being annihilated, must escape laterally. In their escape, they effectually prevent every farther impulse, small part because they come in the way of these filaments which would have struck the body. The whole process seems to be somewhat as follows:

When the flat surface of the fluid has come into contact with the plane surface AD (fig. 6.), perpendicular

Resistance.

39 But a very small part of a fluid can make any impulse on a surface.

Plate
to ccccxvi.

Resistance. to the direction DC of their motion, they must deflect to both sides equally, and in equal portions, because no reason can be assigned why more should go to either side. By this means the filament EF, which would have struck the surface in G, is deflected *before it arrives at* the surface, and describes a curved path EFIHK, continuing its rectilinear motion to I, where it is intercepted by a filament immediately adjoining to EF, on the side of the middle filament DC. The different particles of DC may be supposed to impinge in succession at C, and to be deflected at right angles; and gliding along CB, to escape at B. Each filament in succession, outwards from DC, is deflected in its turn; and being hindered from even touching the surface CB, it glides off in a direction parallel to it; and thus EF is deflected in I, moves parallel to CB from I to H, and is again deflected at right angles, and describes HK parallel to DC. The same thing may be supposed to happen on the other side of DC.

And thus it would appear, that except two filaments immediately adjoining to the line DC, which bisects the surface at right angles, no part of the fluid makes any impulse on the surface AB. All the other filaments are merely pressed against it by the lateral filaments without them, which they turn aside, and prevent from striking the surface.

Plate
ccccxxvi.
40
No impulse
on the edge
of a prism.

In like manner, when the fluid strikes the edge of a prism or wedge ACB (fig. 7.); it cannot be said that any real impulse is made. Nothing hinders us from supposing C a mathematical angle or indivisible point, not susceptible of any impulse, and serving merely to divide the stream. Each filament EF is effectually prevented from impinging at G in the line of its direction, and with the obliquity of incidence EGC, by the filaments between EF and DC, which glide along the surface CA; and it may be supposed to be deflected when it comes to the line CF which bisects the angle DCA, and again deflected and rendered parallel to DC at I. The same thing happens on the other side of DC; and we cannot in this case assert that there is any impulse.

41
The ordinary theory of no use in naval architecture.

We now see plainly how the ordinary theory must be totally unfit for furnishing principles of naval architecture, even although a formula could be deduced from such a series of experiments as those of the French Academy. Although we should know precisely the impulse, or, to speak now more cautiously, the action, of the fluid on a surface GL (fig. 8.) of any obliquity, when it is alone, detached from all others, we cannot in the smallest degree tell what will be the action of part of a stream of fluid advancing towards it, with the same obliquity, when it is preceded by an adjoining surface CG, having a different inclination; for the fluid will not glide along GL in the same manner as if it made part of a more extensive surface having the same inclination. The previous deflexions are extremely different in these two cases; and the previous deflexions are the only changes which we can observe in the motions of the fluid, and the only causes of that pressure which we observe the body to sustain, and which we call the impulse on it. This theory must, therefore, be quite unfit for ascertaining the action on a curved surface, which may be considered as made up of an indefinite number of successive planes.

We now see with equal evidence how it happens that

the action of fluids on solid bodies may and must be opposed by pressures, and may be compared with and measured by the pressure of gravity. We are not comparing forces of different kinds, percussions with pressures, but pressures with each other. Let us see whether this view of the subject will afford us any method of comparison or absolute measurement.

When a filament of fluid, that is, a row of corpuscles, are turned out of their course EF (fig. 6.), and forced to take another course IH, force is required to produce this change of direction. The filament is prevented from proceeding by other filaments which lie between it and the body, and which deflect it in the same manner as if it were contained in a bended tube, and it will press on the concave filament next to it as it would press on the concave side of the tube. Suppose such a bended tube ABE (fig. 9.), and that a ball A is projected along it with any velocity, and moves in it without friction: it is demonstrated, in elementary mechanics, that the ball will move with undiminished velocity; and will press on every point, such as B, of the concave side of the tube, in a direction BF perpendicular to the plane CBD, which touches the tube in the point B. This pressure on the adjoining filament, on the concave side of its path, must be withstood by that filament which deflects it; and it must be propagated across that filament to the next, and thus augment the pressure upon that next filament already pressed by the deflection of the intermediate filament; and thus there is a pressure towards the middle filament, and towards the body, arising from the deflection of all the outer filaments; and their accumulated sum must be conceived as immediately exerted on the middle filaments and on the body, because a perfect fluid transmits every pressure undiminished.

The pressure BF is equivalent to the two BH, BG, one of which is perpendicular, and the other parallel, to the direction of the original motion. By the first (taken in any point of the curvilinear motion of any filament), the two halves of the stream are pressed together; and in the case of fig. 6. and 7. exactly balance each other. But the pressures, such as BG, must be ultimately withstood by the surface ACB; and it is by these accumulated pressures that the solid body is urged down the stream; and it is these accumulated pressures which we observe and measure in our experiments. We shall anticipate a little, and say that it is most easily demonstrated, that when a ball A (fig. 9.) moves with undiminished velocity in a tube so incurvated that its axis at E is at right angles to its axis at A, the accumulated action of the pressures, such as BG, taken for every point of the path, is precisely equal to the force which would produce or extinguish the original motion.

This being the case, it follows most obviously, that if the two motions of the filaments are such as we have described and represented by fig. 6. the whole pressure in the direction of the stream, that is, the whole pressure which can be observed on the surface, is equal to the weight of a column of fluid having the surface for its base, and twice the fall productive of the velocity for its height, precisely as Newton deduced it from other considerations; and it seems to make no odds whether the fluid be elastic or unelastic, if the deflexions and velocities are the same. Now it is a fact, that no difference in this respect

stance. spect can be observed in the actions of air and water; and this had always appeared a great defect in Newton's theory: but it is only a defect of the theory attributed to him. But it is also true, that the observed action is but one-half of what is just now deduced from this improved view of the subject. Whence arises this difference? The reason is this: We have given a very erroneous account of the motions of the filaments. A filament EF does not move as represented in fig. 6. with two rectangular inflexions at I and at H, and a path IH between them parallel to CB. The process of nature is more like what is represented in fig. 10. *It is observed*, that at the anterior part of the body AB, there remains a quantity of fluid ADB, almost, if not altogether, stagnant, of a singular shape, having two curved concave sides AaD, BbD, along which the middle filaments glide. This fluid is very slowly changed.—The late Sir Charles Knowles, an officer of the British navy, equally eminent for his scientific professional knowledge and for his military talents, made many beautiful experiments for ascertaining the paths of the filaments of water. At a distance up the stream, he allowed small jets of a coloured fluid, which did not mix with water, to make part of the stream; and the experiments were made in troughs with sides and bottom of plate-glass. A small taper was placed at a considerable height above, by which the shadows of the coloured filaments were most distinctly projected on a white plane held below the trough, so that they were accurately drawn with a pencil. A few important particulars may be here mentioned.

The still water ADC lasted for a long while before it was renewed; and it seemed to be gradually wasted by abrasion, by the adhesion of the surrounding water, which gradually licked away the outer parts from D to A and B; and it seemed to renew itself in the direction CD, opposite to the motion of the stream. There was, however, a considerable intricacy and eddy in this motion. Some (seemingly superficial) water was continually, but slowly, flowing outward from the line DC, while other water was seen within and below it, coming inwards and going backwards.

The coloured lateral filaments were most constant in their form, while the body was the same, although the velocity was in some cases quadrupled. Any change which this produced seemed confined to the superficial filaments.

As the filaments were deflected, they were also constricted, that is, the curved parts of the filaments were nearer each other than the parallel straight filaments up the stream; and this constriction was more considerable as the prow was more obtuse and the deflexion greater.

The inner filaments were ultimately more deflected than those without them; that is, if a line be drawn touching the curve EFIH in the point H of contrary flexure, where the concavity begins to be on the side next the body, the angle HKC, contained between the axis and this tangent line, is so much the greater as the filament is nearer the axis.

When the body exposed to the stream was a box of upright sides, flat bottom, and angular prow, like a wedge, having its edge also upright, the filaments were not all deflected laterally, as theory would make us expect; but the filaments near the bottom were also deflected downwards as well as laterally, and glided along

at some distance under the bottom, forming lines of Resistance double curvature.

The breadth of the stream that was deflected was much greater than that of the body; and the sensible deflection begun at a considerable distance up the stream, especially in the outer filaments.

Lastly, the form of the curves was greatly influenced by the proportion between the width of the trough and that of the body. The curvature was always less when the trough was very wide in proportion to the body.

Great varieties were also observed in the motion or velocity of the filaments. In general, the filaments increased in velocity outwards from the body to a certain small distance, which was nearly the same in all cases, and then diminished all the way outward. This was observed by inequalities in the colour of the filaments, by which one could be observed to outstrip another. The retardation of those next the body seemed to proceed from friction; and it was imagined that without this the velocity there would always have been greatest.

These observations give us considerable information ⁴⁵With infere-
respecting the mechanism of these motions, and the accen-
tion of fluids upon solids. The pressure in the duplicate
ratio of the velocities comes here again into view. We
found, that although the velocities were very different,
the curves were precisely the same. Now the observed
pressures arise from the transverse forces by which each
particle of a filament is retained in its curvilinear path;
and we know that the force by which a body is retained
in any curve is directly as the square of the velocity,
and inversely as the radius of curvature. The curvature,
therefore, remaining the same, the transverse forces, and
consequently the pressure on the body, must be as the
square of the velocity: and, on the other hand, we can
see pretty clearly (indeed it is rigorously demonstrated
by D'Alembert), that whatever be the velocities, the
curves *will* be the same. For it is known in hydraulics,
that it requires a fourfold or ninefold pressure to pro-
duce a double or triple velocity. And as all pressures
are propagated through a perfect fluid without diminu-
tion, this fourfold pressure, while it produces a double
velocity, produces also fourfold transverse pressures,
which will retain the particles, moving twice as fast, in
the same curvilinear paths. And thus we see that the
impulses, as they are called, and resistances of fluids,
have a certain relation to the weight of a column of
fluid, whose height is the height necessary for producing
the velocity. How it happens that a plane surface, im-
mersed in an extended fluid, sustains just half the pres-
sure which it would have sustained had the motions been
such as are sketched in figure 6th, is a matter of more cu-
rious and difficult investigation. But we see evidently
that the pressure must be less than what is there assigned;
for the stagnant water a-head of the body greatly di-
minishes the ultimate deflections of the filaments: And
it may be demonstrated, that when the part BE of the
canal, fig. 9. is inclined to the part AB in an angle
less than 90°, the pressures BG along the whole canal
are as the versed sine of the ultimate angle of deflection,
or the versed sine of the angle which the part BE makes
with the part AB. Therefore, since the deflexions re-
semble more the sketch given in fig. 10. the accumulated
sum of all these forces BG of fig. 9. must be less than
the similar sum corresponding to fig. 6. that is, less than
O 2 the

Resistance. the weight of the column of fluid, having twice the productive height for its height. How it is just one-half, shall be our next inquiry.

46
Investiga-
tions of
Newton

And here we must return to the labours of Sir Isaac Newton. After many beautiful observations on the nature and mechanism of continued fluids, he says, that the resistance which they occasion is but one-half of that occasioned by the rare fluid which had been the subject of his former proposition; "which truth," (says he, with his usual caution and modesty), "I shall endeavour to show."

He then enters into another, as novel and as difficult an investigation, viz. the laws of hydraulics, and endeavours to ascertain the motion of fluids through orifices when urged by pressures of any kind. He endeavours to ascertain the velocity with which a fluid escapes through a horizontal orifice in the bottom of a vessel, by the action of its weight, and the pressure which this vein of fluid will exert on a little circle which occupies part of the orifice. To obtain this, he employs a kind of approximation and trial, of which it would be extremely difficult to give an extract; and then, by increasing the diameter of the vessel and of the hole to infinity, he accommodates his reasoning to the case of a plane surface exposed to an indefinitely extended stream of fluid; and lastly, giving to the little circular surface the motion which he had before ascribed to the fluid, he says, that the resistance to a plane surface moving through an unelastic continuous fluid, is equal to the weight of a column of the fluid whose height is one-half of that necessary for acquiring the velocity; and he says, that the resistance of a globe is, in this case, the same with that of a cylinder of the same diameter. The resistance, therefore, of the cylinder or circle is four times less; and that of the globe is twice less than their resistances on a rare elastic medium.

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Liable to
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But this determination, though founded on principles or assumptions, which are much nearer to the real state of things, is liable to great objections. It depends on his method for ascertaining the velocity of the issuing fluid; a method extremely ingenious, but defective. The cataraet, which he supposes, cannot exist as he supposes, descending by the full action of gravity, and surrounded by a funnel of stagnant fluid. For, in such circumstances, there is nothing to balance the hydrostatical pressure of this surrounding fluid; because the whole pressure of the central cataraet is employed in producing its own descent. In the next place, the pressure which he determines is beyond all doubt only half of what is observed on a plane surface in all our experiments. And, in the third place, it is repugnant to all our experience, that the resistance of a globe or of a pointed body is as great as that of its circular base. His reasons are by no means convincing. He supposes them placed in a tube or canal; and since they are supposed of the same diameter, and therefore leave equal spaces at their sides, he concludes, that because the water escapes by their sides with the same velocity, they will have the same resistance. But this is by no means a necessary consequence. Even if the water should be allowed to exert equal pressures on them, the pressures being perpendicular to their surfaces, and these surfaces being inclined to the axis, while in the case of the base of a cylinder it is in the direction of the axis, there must be a difference in

the accumulated or compound pressure in the direction of the axis. He indeed says, that in the case of the cylinder or the circle obstructing the canal, a quantity of water remains stagnant on its upper surface; viz. all the water whose motion would not contribute to the most ready passage of the fluid between the cylinder and the sides of the canal or tube; and that this water may be considered as frozen. If this be the case, it is indifferent what is the form of the body that is covered with this mass of frozen or stagnant water. It may be a hemisphere or a cone; the resistance will be the same. — But Newton by no means assigns, either with precision or with distinct evidence, the form and magnitude of this stagnant water, so as to give confidence in the results. He contents himself with saying, that it is that water whose motion is not necessary or cannot contribute to the most easy passage of the water.

There remains, therefore, many imperfections in this theory. But notwithstanding these defects, we cannot but admire the efforts and sagacity of this great philosopher, who, after having discovered so many sublime truths of mechanical nature, ventured to trace out a path for the solution of a problem which no person had yet attempted to bring within the range of mathematical investigation. And his solution, though inaccurate, shines throughout with that inventive genius and that fertility of resource, which no man ever possessed in so eminent a degree.

Those who have attacked the solution of Sir Isaac Newton have not been more successful. Most of them, instead of principles, have given a great deal of calculus; and the chief merit which any of them can claim, is that of having deduced some single proposition which happens to quadrate with some single case of experiment, while their general theories are either inapplicable, from difficulty and obscurity, or are discordant with more general observation.

We must, however, except from this number Daniel Bernoulli, who was not only a great geometer, but one of the first philosophers of the age. He possessed all the talents, and was free from the faults of that celebrated family; and while he was the mathematician of Europe who penetrated farthest in the investigation of this great problem, he was the only person who felt, or at least who acknowledged, its great difficulty.

In the 2d volume of the *Comment. Petropol.* 1727, he proposes a formula for the resistance of fluids, deduced from considerations quite different from those on which Newton founded his solution. But he delivers it with modest diffidence; because he found that it gave a resistance four times greater than experiment. In the same dissertation he determines the resistance of a sphere to be one half of that of its great circle. But in his subsequent theory of Hydrodynamics (a work which must ever rank among the first productions of the age, and is equally eminent for refined and elegant mathematics, and ingenious and original thoughts in dynamics), he calls this determination in question. It is indeed founded on the same hypothetical principles which have been unskilfully detached from the rest of Newton's physics, and made the ground-work of all the subsequent theories on this subject.

In 1741 Mr Daniel Bernoulli published another dissertation

Resistance. fertation (in the 8th volume of the *Com. Petropol.*) on the action and resistance of fluids, limited to a very particular case; namely, to the impulse of a vein of fluid falling perpendicularly on an infinitely extended plane surface. This he demonstrates to be equal to the weight of a column of the fluid whose base is the area of the vein, and whose height is twice the fall producing the velocity. This demonstration is drawn from the true principles of mechanics and the acknowledged laws of hydraulics, and may be received as a strict physical demonstration. As it is the only proposition in the whole theory that has as yet received a demonstration accessible to readers not versant in all the refinement of modern analysis; and as the principles on which it proceeds will undoubtedly lead to a solution of every problem which can be proposed, once that our mathematical knowledge shall enable us to apply them—we think it our duty to give it in this place, although we must acknowledge, that this problem is so very limited, that it will hardly bear an application to any case that differs but a little from the express conditions of the problem. There do occur cases however in practice, where it may be applied to very great advantage.

Daniel Bernoulli gives two demonstrations; one of which may be called a popular one, and the other is more scientific and introductory to further investigation. We shall give both.

Bernoulli first determines the whole action exerted in the efflux of the vein of fluid. Suppose the velocity of efflux v is that which would be acquired by falling through the height h . It is well known that a body moving during the time of this fall with the velocity v would describe a space $2h$. The effect, therefore, of the hydraulic action is, that in the time t of the fall h , there issues a cylinder or prism of water whose base is the cross section f or area of the vein, and whose length is $2h$. And this quantity of matter is now moving with the velocity v . The quantity of motion, therefore, which is thus produced is $2shv$; and this quantity of motion is produced in the time t . And this is the accumulated effect of all the expelling forces, estimated in the direction of the efflux. Now, to compare this with the exertion of some pressing power with which we are familiarly acquainted, let us suppose this pillar $2sh$ to be frozen, and, being held in the hand, to be dropped. It is well known, that in the time t it will fall through the height h , and will acquire the velocity v , and now possesses the quantity of motion $2shv$ —and all this is the effect of its weight. The weight, therefore, of the pillar $2sh$ produces the same effect, and in the same time, and (as may easily be seen) in the same gradual manner, with the expelling forces of the fluid in the vessel, which expelling forces arise from the pressure of all the fluid in the vessel. Therefore the accumulated hydraulic pressure, by which a vein of a heavy fluid is forced out through an orifice in the bottom or side of a vessel, is equal (when estimated in the direction of the efflux) to the weight of a column of the fluid, having for its base the section of the vein, and twice the fall productive of the velocity of efflux for its height.

Now let $ABDC$ (fig. 11.) be a quadrangular vessel with upright plane sides, in one of which is an orifice EF . From every point of the circumference of this

orifice, suppose horizontal lines Ee , Ff , &c. which will mark a similar surface on the opposite side of the vessel. Suppose the orifice EF to be shut. There can be no doubt but that the surfaces EF and ef will be equally pressed in opposite directions. Now open the orifice EF ; the water will rush out, and the pressure on EF is now removed. There will therefore be a tendency in the vessel to move back in the direction Ee . And this tendency must be precisely equal and opposite to the whole effort of the expelling forces. This is a conclusion as evident as any proposition in mechanics. It is thus that a gun recoils and a rocket rises in the air; and on this is founded the operation of Mr Parents or Dr Barker's mill, described in all treatises of mechanics, and most learnedly treated by Euler in the *Berlin Memoirs*.

Now, let this stream of water be received on a circular plane MN , perpendicular to its axis, and let this circular plane be of such extent, that the vein escapes from its sides in an infinitely thin sheet, the water flowing off in a direction parallel to the plane. The vein by this means will expand into a trumpet-like shape, having curved sides, EKG , FLH . We abstract at present the action of gravity which would cause the vein to bend downwards, and occasion a greater velocity at H than at G ; and we suppose the velocity equal in every point of the circumference. It is plain, that if the action of gravity be neglected after the water has issued through the orifice EF , the velocity in every point of the circumference of the plane MN will be that of the efflux through EF .

Now, because EKG is the natural shape assumed by the vein, it is plain, that if the whole vein were covered by a tube or mouth-piece, fitted to its shape, and perfectly polished, so that the water shall glide along it, without any friction (a thing which we may always suppose), the water will exert no pressure whatever on this trumpet mouth-piece. Lastly, let us suppose that the plane MN is attached to the mouth-piece by some bits of wire, so as to allow the water to escape all round by the narrow chink between the mouth-piece and the plane: We have now a vessel consisting of the upright part $ABDC$, the trumpet $GKEFLH$, and the plane MN ; and the water is escaping from every point of the circumference of the chink $GHNM$ with the velocity v . If any part of this chink were shut up, there would be a pressure on that part equivalent to the force of efflux from the opposite part. Therefore, when all is open, these efforts of efflux balance each other all round. There is not therefore any tendency in this compound vessel to move to any side. But take away the plane MN , and there would immediately arise a pressure in the direction Ee equal to the weight of the column $2sh$. This is therefore balanced by the pressure on the circular plane MN , which is therefore equal to this weight, and the proposition is demonstrated.

A number of experiments were made by Professor Kraft at St Petersburg, by receiving the vein on a plane MN (fig. 11.) which was fastened to the arm of a balance OPQ , having a scale R hanging on the opposite arm. The resistance or pressure on the plane was measured by weights put into the scale R ; and the velocity of the jet was measured by means of the distance KH , to which it spouted on a horizontal plane.

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Resistance. The results of these experiments were as conformable to the theory as could be wished. The resistance was always a little less than what the theory required, but greatly exceeded its half; the result of the generally received theories. This defect should be expected; for the demonstration supposes the plane MN to be infinitely extended, so that the film of water which issues through the chink may be accurately parallel to the plane. This never can be completely effected. Also it was supposed, that the velocity was justly measured by the amplitude of the parabola EGK. But it is well known that the very putting the plane MN in the way of the jet, though at the distance of an inch from the orifice, will diminish the velocity of the efflux through this orifice. This is easily verified by experiment. Observe the time in which the vessel will be emptied when there is no plane in the way. Repeat the experiment with the plane in its place; and more time will be necessary. The following is a note of a course of experiments, taken as they stand, without any selection.

	N ^o 1	2	3	4	5	6
Resist. by theory	1701	1720	1651	1602	1528	1072
Resist. by experiment	1403	1463	1486	1401	1403	1021
Difference	298	257	165	201	125	51

In order to demonstrate this proposition in such a manner as to furnish the means of investigating the whole mechanism and action of moving fluids, it is necessary to premise an elementary theorem of curvilinear motions.

If a particle of matter describes a curve line ABCE (fig. 13.) by the continual action of deflecting forces, which vary in any manner, both with respect to intensity and direction, and if the action of these forces, in every point of the curve, be resolved into two directions, perpendicular and parallel to the initial direction AK; then,

1. The accumulated effect of the deflecting forces, estimated in a direction AD perpendicular to AK, is to the final quantity of motion as the sine of the final change of direction is to radius.

Let us first suppose that the accelerating forces act by starts, at equal intervals of time, when the body is in the points A, B, C, E. And let AN be the deflecting force, which, acting at A, changes the original direction AK to AB. Produce AB till BH = AB, and complete the parallelogram BFCH. Then FB is the force which, by acting at B, changed the motion BH (the continuation of AB) to BC. In like manner make Ch (in BC produced) equal to BC, and complete the parallelogram CfEb. Cf is the deflecting force at C, &c. Draw BO parallel to AN, and GBK perpendicular to AK. Also draw lines through C and E perpendicular to AK, and draw through B and C lines parallel to AK. Draw also HL, bl perpendicular, and FG, HI, bi, parallel to AK.

It is plain that BK is BO or AN estimated in the direction perpendicular to AK, and that BG is BF estimated in the same way. And since BH = AB, HL or IM is equal to BK. Also CI is equal to BG. Therefore CM is equal to AP + BG. By similar reasoning it appears that $Em = Ei + bi = Cg + CM = Cg + BG + AP$.

Therefore if CE be taken for the measure of the final velocity or quantity of motion, Em will be the accumulated effect of the deflecting forces estimated in the direction AD perpendicular to AK. But Em is

to CE as the sine of mCE is to radius; and the angle mCE is the angle contained between the initial and final directions, because Cm is parallel to AK. Now let the intervals of time diminish continually and the frequency of the impulses increase. The deflection becomes ultimately continuous, and the motion curvilinear, and the proposition is demonstrated.

We see that the initial velocity and its subsequent changes do not affect the conclusion, which depends entirely on the final quantity of motion.

2. The accumulated effect of the accelerating forces, when estimated in the direction AK of the original motion, or in the opposite direction, is equal to the difference between the initial quantity of motion and the product of the final quantity of motion by the cosine of the change of direction.

$$\begin{aligned} \text{For } Cm &= Cl - ml, = BM - fg \\ BM &= BL - ML, = AK - FG \\ AK &= AO - OK, = AO - PN. \end{aligned}$$

Therefore $PN + FG + fQ$ (the accumulated impulse in the direction OA) = $AO - CM, = AO - CE \times \cos$ of ECM.

Cor. 1. The same action, in the direction opposite to that of the original motion, is necessary for causing a body to move at right angles to its former direction as for stopping its motion. For in this case, the cosine of the change of direction is = 0, and $AO - CE \times \cos$ of ECM = $AO - 0, = AO$, = the original motion.

Cor. 2. If the initial and final velocities are the same, the accumulated action of the accelerating forces, estimated in the direction OA, is equal to the product of the original quantity of motion by the versed sine of the change of direction.

The application of these theorems, particularly the second, to our present purpose is very obvious. All the filaments of the jet were originally moving in the direction of its axis, and they are finally moving along the resisting plane, or perpendicular to their former motion. Therefore their transverse forces in the direction of the axis are (in cumulo) equal to the force which would stop the motion. For the aggregate of the simultaneous forces of every particle in the whole filament is the same with that of the successive forces of one particle, as it arrives at different points of its curvilinear path. All the transverse forces, estimated in a direction perpendicular to the axis of the vein, precisely balance and sustain each other; and the only forces which can produce a sensible effect are those in a direction parallel to the axis. By these all the inner filaments are pressed towards the plane MN, and must be withstood by it. It is highly probable, nay certain, that there is a quantity of stagnant water in the middle of the vein which sustains the pressures of the moving filaments without it, and transmits it to the solid plane. But this does not alter the case. And, fortunately, it is of no consequence what changes happen in the velocities of the particles while each is describing its own curve. And it is from this circumstance, peculiar to this particular case of perpendicular impulse, that we are able to draw the conclusion. It is by no means difficult to demonstrate that the velocity of the external surface of this jet is constant, and indeed of every jet which is not acted on by external forces after it has quitted the orifice: but this discussion is quite unnecessary here. It is however extremely difficult to ascertain, even in this most simple case,

Resistance. case, what is the velocity of the internal filaments in the different points of their progress.

Such is the demonstration which Mr Bernouilli has given of this proposition. Limited as it is, it is highly valuable, because derived from the true principles of hydraulics.

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He hoped to render it more extensive and applicable to oblique impulses, when the axis AC of the vein (fig. 13. n° 2.) is inclined to the plane in an angle ACN. But here all the simplicity of the case is gone, and we are now obliged to ascertain the motion of each filament. It might not perhaps be impossible to determine what must happen in the plane of the figure, that is, in a plane passing through the axis of the vein, and perpendicular to the plane MN. But even in this case it would be extremely difficult to determine how much of the fluid will go in the direction EKG, and what will go in the path FLH, and to ascertain the form of each filament, and the velocity in its different points. But in the real state of the case, the water will dissipate from the centre C on every side; and we cannot tell in what proportions. Let us however consider a little what happens in the plane of the figure, and suppose that all the water goes either in the course EKG or in the course FLH. Let the quantities of water which take these two courses have the proportions of p and π . Let $\sqrt{2a}$ be the velocity at A, $\sqrt{2b}$ be the velocity at G, and $\sqrt{2c}$ be the velocity at H. ACG and ACH are the two changes of direction, of which let c and $-c$ be the cosines. Then, adopting the former reasoning, we have the pressure of the watery plate GKEACM on the plane in the direction AC = $\frac{p}{p+\pi} \times 2a - 2cb$, and the pressure of the

plate HLFACN = $\frac{\pi}{p+\pi} \times 2a + 2cb$, and their sum = $\frac{p \times 2a - 2cb + \pi \times 2a + 2cb}{p+\pi}$; which being multiplied by the sine of ACM or $\sqrt{1-c^2}$, gives the pressure perpendicular to the plane MN = $\frac{p \times 2a - 2cb + \pi \times 2a + 2cb}{p+\pi} \sqrt{1-c^2}$.

But there remains a pressure in the direction perpendicular to the axis of the vein, which is not balanced, as in the former case, by the equality on opposite sides of the axis. The pressure arising from the water which escapes at G has an effect opposite to that produced by the water which escapes at H. When this is taken into account, we shall find that their joint ef-

forts perpendicular to AC are $\frac{p-\pi}{p+\pi} \times 2a \sqrt{1-c^2}$, which, being multiplied by the cosine of ACM, gives the action perpendicular to MN = $\frac{p-\pi}{p+\pi} \times 2ac \sqrt{1-c^2}$.

The sum or joint effort of all these pressures is $\frac{p \times 2a - 2cb + \pi \times 2a + 2cb}{p+\pi} \sqrt{1-c^2} + \frac{p-\pi}{p+\pi} \times 2ac \sqrt{1-c^2}$.

Thus, from this case, which is much simpler than can happen in nature, seeing that there will always be a lateral efflux, the determination of the impulse is as uncertain and vague as it was sure and precise in the former case.

It is therefore without proper authority that the absolute impulse of a vein of fluid on a plane which receives it wholly, is asserted to be proportional to the sine of incidence. If indeed we suppose the velocity in G and H are equal to that at A, then $b=c$, $a=b$, and the whole impulse is $2a\sqrt{1-c^2}$, as is commonly supposed. But this cannot be. Both the velocity and quantity at H are less than those at G. Nay, frequently there is no efflux on the side H when the obliquity is very great. We may conclude in general, that the oblique impulse will always bear to the direct impulse a greater proportion than that of the sine of incidence to radius. If the whole water escapes at G, and none goes off laterally, the pressure will be $2a + 2ac - 2bc \times \sqrt{1-c^2}$. The experiments of the Abbé Bossut show in the plainest manner that the pressure of a vein, striking obliquely on a plane which receives it wholly, diminishes faster than in the ratio of the square of the sine of incidence; whereas, when the oblique plane is wholly immersed in the stream, the impulse is much greater than in this proportion, and in great obliquities is nearly as the sine.

Nor will this proposition determine the impulse of a fluid on a plane wholly immersed in it, even when the impulse is perpendicular to the plane. The circumstance is now wanting on which we can establish a calculation, namely, the angle of final deflection. Could this be ascertained for each filament, and the velocity of the filament, the principles are completely adequate to an accurate solution of the problem. In the experiments which we mentioned to have been made under the inspection of Sir Charles Knowles, a cylinder of six inches diameter was exposed to the action of a stream moving precisely one foot per second; and when certain deductions were made for the water which was held adhering to the posterior base (as will be noticed afterwards), the impulse was found equal to $3\frac{1}{8}$ ounces avoirdupois. There were 36 coloured filaments distributed on the stream, in such situations as to give the most useful indications of their curvature. It was found necessary to have some which passed under the body and some above it; for the form of these filaments, at the same distance from the axis of the cylinder, was considerably different: and those filaments which were situated in planes neither horizontal nor vertical took a double curvature. In short, the curves were all traced with great care, and the deflecting forces were computed for each, and reduced to the direction of the axis; and they were summed up in such a manner as to give the impulse of the whole stream. The deflections were marked as far a-head of the cylinder as they could be assuredly observed. By this method the impulse was computed to be $2\frac{1}{8}$ ounces, differing from observation $\frac{1}{8}$ of an ounce, or about $\frac{1}{8}$ of the whole; a difference which may most reasonably be ascribed to the adhesion of the water, which must be most sensible in such small velocities. These experiments may therefore be considered as giving all the confirmation that can be desired of the justness of the principles. This indeed hardly admits of a doubt: but, alas! it gives us but small assistance; for all this is empirical, in as far as it leaves us in every case the task of observing the form of the curves and the velocities in their different points. To derive service from this most judicious method of Daniel Bernouilli, we must discover some method of determining, *a priori*,

Resistance. *a priori*, what will be the motion of the fluid whose course is obstructed by a body of any form. And here we cannot omit taking notice of the casual observation of Sir Isaac Newton when attempting to determine the resistance of the plane surface or cylinder, or sphere exposed to a stream moving in a canal. He says that the form of the resisting surface is of less consequence, because there is always a quantity of water stagnant upon it, and which may therefore be considered as frozen; and he therefore considers that water only whose motion is necessary for the most expeditious discharge of the water in the vessel. He endeavours to discriminate that water from the rest; and although it must be acknowledged that the principle which he assumes for this purpose is very gratuitous, because it only shows that *if certain portions of the water*, which he determines very ingeniously, were really frozen, the rest will issue as he says, and will exert the pressure which he assigns; still we must admire his fertility of resource, and his sagacity in thus foreseeing what subsequent observation has completely confirmed. We are even disposed to think, that in this casual observation Sir Isaac Newton has pointed out the only method of arriving at a solution of the problem; and that if we could discover *what motions are not necessary for the most expeditious passage of the water*, and could thus determine the form and magnitude of the stagnant water which adheres to the body, we should much more easily ascertain the real motions which occasion the observed resistance. We are here disposed to have recourse to the economy of nature, the improper use of which we have sometimes taken the liberty of reprehending. Mr Maupertuis published as a great discovery his principle of smallest action, where he showed that in all the mutual actions of bodies the quantity of action was a minimum; and he applied this to the solution of many difficult problems with great success, imagining that he was really reasoning from a contingent law of nature, selected by its infinitely wise Author, viz. that in all occasions there is the smallest possible exertion of natural powers. Mr D'Alembert has, however, shown (vid. *Encyclopédie Française*, ACTION) that this was but a whim, and that the minimum observed by Maupertuis is merely a minimum of calculus, peculiar to a formula which happens to express a combination of mathematical quantities which frequently occurs in our way of considering the phenomena of nature, but which is no natural measure of action.

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A method recommended for obtaining a general theory.

But the chevalier D'Arcy has shown, that in the trains of natural operations which terminate in the production of motion in a particular direction, the intermediate communications of motion are such that the smallest possible quantity of motion is produced. We seem obliged to conclude, that this law will be observed in the present instance; and it seems a problem not above our reach to determine the motions which result from it. We would recommend the problem to the eminent mathematicians in some simple case, such as the proposition already demonstrated by Daniel Bernoulli, or the perpendicular impulse on a cylinder included in a tubular canal; and if they succeed in this, great things may be expected. We think that experience gives great encouragement. We see that the resistance to a plane surface is a very small matter greater than the weight of a column of the fluid having the fall productive of

the velocity for its height, and the small excess is most probably owing to adhesion, and the measure of the real resistance is probably precisely this weight. The velocity of a spouting fluid was found, in fact, to be that acquired by falling from the surface of the fluid; and it was by looking at this, as at a pole star, that Newton, Bernoulli, and others, have with great sagacity and ingenuity discovered much of the laws of hydraulics, by searching for principles which would give this result. We may hope for similar success.

In the mean time, we may receive this as a physical truth, that the perpendicular impulse or resistance of a plane surface, wholly immersed in the fluid, is equal to the weight of the column having the surface for its base, and the fall producing the velocity for its height.

This is the medium result of all experiments made in these precise circumstances. And it is confirmed by a set of experiments of a kind wholly different, and which seem to point it out more certainly as an immediate consequence of hydraulic principles.

If Mr Pitot's tube be exposed to a stream of fluid issuing from a reservoir or vessel, as represented in fig. 14. with the open mouth I pointed directly against the stream, the fluid is observed to stand at K in the upright tube, precisely on a level with the fluid AB in the reservoir. Here is a most unexceptionable experiment, in which the impulse of the stream is actually opposed to the hydrostatical pressure of the fluid on the tube. Pressure is in this case opposed to pressure, because the issuing fluid is deflected by what stays in the mouth of the tube, in the same way in which it would be deflected by a firm surface. We shall have occasion by and by to mention some most valuable and instructive experiments made with this tube.

It was this which suggested to the great mathematician Euler another theory of the impulse and resistance of fluids, which must not be omitted, as it is applied in his elaborate performance On the Theory of the Construction and Working of Ships, in two volumes 4to, which was afterwards abridged and used as a text-book in some marine academies. He supposes a stream of fluid ABCD (fig. 15.), moving with any velocity, to strike the plane BD perpendicularly, and that part of it goes through a hole EF, forming a jet EGHF. Mr Euler says, that the velocity of this jet will be the same with the velocity of the stream. Now compare this with an equal stream issuing from a hole in the side of a vessel with the same velocity. The one stream is urged out by the pressure occasioned by the impulse of the fluid; the other is urged out by the pressure of gravity. The effects are equal, and the modifying circumstances are the same. The causes are therefore equal, and the pressure occasioned by the impulse of a stream of fluid, moving with any velocity, is equal to the weight of a column of fluid whose height is productive of this velocity, &c. He then determines the oblique impulse by the resolution of motion, and deduces the common rules of resistance, &c.

But all this is without just grounds. This gentleman was always satisfied with the slightest analogies which would give him an opportunity of exhibiting his great dexterity in algebraic analysis, and was not afterwards startled by any discordancy with observation. *Analysi magis fidendum* is a frequent assertion with him.

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Experiment by Mr Pitot's tube. Plate cccxxx

57
Euler's theory.

ance. Though he wrote a large volume, containing a theory of light and colours totally opposite to Newton's, he has published many dissertations on optical phenomena on the Newtonian principles, expressly because his own principles *non ideo facile ansum praebebat analysi infru-* ende.

Not a shadow of argument is given for the leading principle in this theory, viz. that the velocity of the jet is the same with the velocity of the stream. None can be given, but saying that the pressure is equivalent to its production; and this is assuming the very thing he labours to prove. The matter of fact is, that the velocity of the jet is greater than that of the stream, and may be greater almost in any proportion. Which curious circumstance was discovered and ingeniously explained long ago by Daniel Bernoulli in his *Hydrodynamica*. It is evident that the velocity must be greater. Were a stream of sand to come against the plane, what goes through would indeed preserve its velocity unchanged: but when a real fluid strikes the plane, all that does not pass through is deflected on all sides; and by these deflections forces are excited, by which the filaments which surround the cylinder immediately fronting the hole are made to press this cylinder on all sides, and as it were squeeze it between them: and thus the particles at the hole must of necessity be accelerated, and the velocity of the jet must be greater than that of the stream. We are disposed to think that, in a fluid perfectly incompressible, the velocity will be doubled, or at least increased in the proportion of 1 to $\sqrt{2}$. If the fluid is in the smallest degree compressible, even in the very small degree that water is, the velocity at the first impulse may be much greater. D. Bernoulli found that a column of water moving 5 feet per second, in a tube some hundred feet long, produced a velocity of 136 feet per second in the first moment.

There being this radical defect in the theory of Mr Euler, it is needless to take notice of its total insufficiency for explaining oblique impulses and the resistance of curvilinear paths.

We are extremely sorry that our readers are deriving so little advantage from all that we have said; and that having taken them by the hand, we are thus obliged to grope about, with only a few scattered rays of light to direct our steps. Let us see what assistance we can get from Mr d'Alembert, who has attempted a solution of this problem in a method entirely new and extremely ingenious. He saw clearly that all the followers of Newton had forsaken the path which he had marked out for them in the second part of his investigation, and had merely amused themselves with the mathematical discussions with which his introductory hypothesis gave them an opportunity of occupying themselves. He paid the deserved tribute of applause to Daniel Bernoulli for having introduced the notion of pure pressure as the chief agent in this business; and he saw that he was in the right road, and that it was from hydrostatical principles alone that we had any chance of explaining the phenomena of hydraulics. Bernoulli had only considered the pressures which were excited in consequence of the curvilinear motions of the particles. Mr d'Alembert even thought that these pressures were not the consequences, but the causes, of these curvilinear motions. No internal motion can happen in a fluid but in consequence of an unbalanced pressure; and every

such motion will produce an inequality of pressure, Resistances which will determine the succeeding motions. He therefore endeavoured to reduce all to the discovery of those disturbing pressures, and thus to the laws of hydrostatics. He had long before this hit on a very refined and ingenious view of the action of bodies on each other, which had enabled him to solve many of the most difficult problems concerning the motions of bodies, such as the centre of oscillation, of spontaneous conversion, the precession of the equinoxes, &c. &c. with great facility and elegance. He saw that the same principle would apply to the action of fluid bodies. The principle is this.

"In whatever manner any number of bodies are supposed to act on each other, and by these actions come to change their present motions, if we conceive that the motion which each body would have in the following instant (if it became free), is resolved into two other motions; one of which is the motion which it really takes in the following instant; the other will be such, that if each body had no other motion but this second, the whole bodies would have remained in equilibrium." We here observe, that "the motion which each body would have in the following instant, if it became free," is a continuation of the motion which it has in the first instant. It may therefore perhaps be better expressed thus:

If the motions of bodies, anyhow acting on each other, be considered in two consecutive instants, and if we conceive the motion which it has in the first instant as compounded of two others, one of which is the motion which it actually takes in the second instant, the other is such, that if each body had only those second motions, the whole system would have remained in equilibrium.

The proposition itself is evident. For if these second motions be not such as that an equilibrium of the whole system would result from them, the other component motions would not be those which the bodies really have after the change; for they would necessarily be altered by these unbalanced motions. See D'Alembert *Essai de Dynamique*.

Assisted by this incontestable principle, Mr d'Alembert demonstrates, in a manner equally new and simple, those propositions which Newton had so cautiously deduced from his hypothetical fluid, showing that they were not limited to this hypothesis, viz. that the motions produced by similar bodies, similarly projected in them, would be similar; that whatever were the pressures, the curves described by the particles would be the same; and that the resistances would be proportional to the squares of the velocities. He then comes to consider the fluid as having its motions constrained by the form of the canal or by solid obstacles interposed.

We shall here give a summary account of his fundamental proposition.

It is evident, that if the body ADCE (fig. 16.) did not form an obstruction to the motion of the water, the particles would describe parallel lines TF, OK, PS, &c. But while yet at a distance from the body in F, K, S, they gradually change their directions, and describe the curves FM, Km, Sn, so much more incurvated as they are nearer to the body. At a certain distance ZY this curvature will be insensible, and the fluid included in the space ZYHQ will move uniformly as if the solid body were not there. The motions on the other side of the axis AC will be the same; and we need only

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Summary
account of
his funda-
mental pro-
position:

Plate
ccccxxvii

Resistance. attend to one half, and we shall consider these as in a state of permanency:

No body changes either its direction or velocity otherwise than by insensible degrees: therefore the particle which is moving in the axis will not reach the vertex *A* of the body, where it behoved to deflect instantaneously at right angles. It will therefore begin to be deflected at some point *F* a-head of the body, and will describe a curve *FM*, touching the axis in *F*, and the body in *M*; and then, gliding along the body, will quit it at some point *L*, describing a tangent curve, which will join the axis again (touching it) in *R*; and thus there will be a quantity of stagnant water *FAM* before or a-head of the body, and another *LCR* behind or after of it.

Let *a* be the velocity of a particle of the fluid in any instant, and *a'* its velocity in the next instant. The velocity *a* may be considered as compounded of *a'* and *a''*. If the particles tended to move with the velocities *a'* only, the whole fluid would be in equilibrio (general principle), and the pressure of the fluid would be the same as if all were stagnant, and each particle were urged by a force $\frac{a''}{t}$, *t* expressing an indefinitely small moment of time. (*N. B.* $\frac{a''}{t}$ is the proper expression of the accelerating force, which, by acting during the moment *t*, would generate the velocity *a''*; and *a''* is supposed an indeterminate quantity, different perhaps for each particle). Now let *a* be supposed constant, or *a* = *a'*. In this case *a''* = 0. That is to say, no pressure whatever will be exerted on the solid body unless there happen changes in the velocities or directions of the particles.

Let *a* and *a'* then be the motions of the particles in two consecutive instants. They would be in equilibrio if urged only by the forces $\frac{a''}{t}$. Therefore if *γ* be the point where the particles which describe the curve *FM* begin to change their velocity, the pressure in *D* would be equal to the pressure which the fluid contained in the canal *γ FMD* would exert, if each particle were solicited by its force $\frac{a''}{t}$. The question is therefore reduced to the finding the curvature in the canal *γ FMD*, and the accelerating forces $\frac{a''}{t}$ in its different parts.

It appears, in the first place, that no pressure is exerted by any of the particles along the curve *FM*: for suppose that the particle *a* (fig. 17.) describes the indefinitely small straight line *ab* in the first instant, and *bc* in the second instant; produce *ab* till *bd* = *ab*, and joining *dc*, the motion *ab* or *bd* may be considered as composed of *bc*, which the particle really takes in the next instant, and a motion *dc* which should be destroyed. Draw *bi* parallel to *dc*, and *ie* perpendicular to *bc*. It is plain that the particle *b*, solicited by the forces *be*, *ei* (equivalent to *dc*) should be in equilibrio. This being established, *be* must be = 0, that is, there will be no accelerating or retarding force at *b*; for if there be, draw *bm* (fig. 18.) perpendicular to *bF*, and the parallel *nq* infinitely near it. The part *bnqm* of the fluid contained in the canal *bnqm* would sustain some pres-

sure from *b* towards *n*, or from *n* towards *b*. Therefore Resistance since the fluid in this stagnant canal should be in equilibrio, there must also be some action, at least in one of the parts *bm*, *mq*, *qn*, to counterbalance the action on the part *bn*. But the fluid is stagnant in the space *FAM* (in consequence of the law of continuity). Therefore there is no force which can act on *bm*, *mq*, *qn*; and the pressure in the canal in the direction *bn* or *nb* is nothing, or the force *be* = 0, and the force *ie* is perpendicular to the canal; and there is therefore no pressure in the canal *FM*, except what proceeds from the part *γ F*, or from the force *ei*; which last being perpendicular to the canal, there can be no force exerted on the point *M*, but what is propagated from the part *γ F*.

The velocity therefore in the canal *FM* is constant if finite, or infinitely small if variable: for, in the first case, the force *be* would be absolutely nothing; and in the second case, it would be an infinitesimal of the second order, and may be considered as nothing in comparison with the velocity, which is of the first order. We shall see by and by that the last is the real state of the case: Therefore the fluid, before it begins to change its direction in *F*, begins to change its velocity in some point *γ* a-head of *F*, and by the time that it reaches *F* its velocity is as it were annihilated.

Cor. 1. Therefore the pressure in any point *D* arises both from the retardations in the part *γ F*, and from the particles which are in the canal *MD*: as these last

move along the surface of the body, the force $\frac{a''}{t}$, destroyed in every particle, is compounded of two others, one in the direction of the surface, and the other perpendicular to it; call these *p* and *p'*. The point *D* is pressed perpendicularly to the surface *MD*; 1st, by all the forces *p* in the curve *MD*; 2^d, by the force *p'* acting on the single point *D*. This may be neglected in comparison of the indefinite number of the others: therefore taking in the arch *MD*, an infinitely small portion *Nm*, = *s*, the pressure on *D*, perpendicular to the surface of the body, will be = $\int p's$; and this fluent must be so taken as to be = 0 in the point *M*.

Cor. 2. Therefore, to find the pressure on *D*, we must find the force *p* on any point *N*. Let *u* be the velocity of the particle *N*, in the direction *Nm* in any instant, and *u + u'* its velocity in the following instant; we must have $p = \frac{u'}{t}$. Therefore the whole question

is reduced to finding the velocity *u* in every point *N*, in the direction *Nm*.

And this is the aim of a series of propositions which follow, in which the author displays the most accurate and precise conception of the subject, and great address and elegance in his mathematical analysis. He at length brings out an equation which expresses the pressure on the body in the most general and unexceptionable manner. We cannot give an abstract, because the train of reasoning is already concise in the extreme: nor can we even exhibit the final equation; for it is conceived in the most refined and abstruse form of indeterminate functions, in order to embrace every possible circumstance. But we can assure our readers, that it truly expresses the solution of the problem. But, alas! it is of 8.

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Resistance. no use. So imperfect is our mathematical knowledge, that even Mr d'Alembert has not been able to exemplify the application of the equation to the simplest case which can be proposed, such as the direct impulse on a plane surface wholly immersed in the fluid. All that he is enabled to do, is to apply it (by some modifications and substitutions which take it out of its state of extreme generality) to the direct impulse of a vein of fluid on a plane which deflects it wholly, and thus to show its conformity to the solution given by Daniel Bernoulli, and to observation and experience. He shows, that this impulse (independent of the deficiency arising from the plane's not being of infinite extent) is somewhat less than the weight of a column whose base is the section of the vein, and whose height is twice the fall necessary for communicating the velocity. This great philosopher and geometer concludes by saying, that he does not believe that any method can be found for solving this problem that is more direct and simple; and imagines, that if the deductions from it shall be found not to agree with experiment, we must give up all hopes of determining the resistance of fluids by theory and analytical calculus. He says *analytical calculus*; for all the physical principles on which the calculus proceeds are rigorously demonstrated, and will not admit of a doubt. There is only one hypothesis introduced in his investigation, and this is not a physical hypothesis, but a hypothesis of calculation. It is, that the quantities which determine the ratios of the second fluxions of the velocities, estimated in the directions parallel and perpendicular to the axis AC (fig. 16.) are functions of the abscissa AP, and ordinate PM of the curve. Any person, in the least acquainted with mathematical analysis, will see, that without this supposition no analysis or calculus whatever can be instituted. But let us see what is the *physical* meaning of this hypothesis. It is simply this, that the motion of the particle M depends on its situation only. It appears impossible to form any other opinion; and if we could form such an opinion, it is as clear as day-light that the case is desperate, and that we must renounce all hopes.

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We are sorry to bring our labours to this conclusion; but we are of opinion, that the only thing that remains is, for mathematicians to attach themselves with firmness and vigour to some simple cases; and, without aiming at generality, to apply Mr d'Alembert's or Bernoulli's mode of procedure to the particular circumstances of the case. It is not improbable but that, in the solutions which may be obtained of these particular cases, circumstances may occur which are of a more general nature. These will be so many laws of hydraulics to be added to our present very scanty stock; and these may have points of resemblance, which will give birth to laws of still greater generality. And we repeat our expression of hopes of some success, by endeavouring to determine, in some simple cases, the *minimum possibile* of motion. The attempts of the Jesuit commentators on the *Principia* to ascertain this on the Newtonian hypothesis do them honour, and have really given us great assistance in the particular case which came through their hands.

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And we should multiply experiments on the resistance of bodies. Those of the French academy are undoubtedly of inestimable value, and will always be ap-

pealed to. But there are circumstances in those experiments which render them more complicated than is proper for a general theory, and which therefore limit the conclusions which we wish to draw from them. The bodies were floating on the surface. This greatly modifies the deflections of the filaments of water, causing some to deflect laterally, which would otherwise have remained in one vertical plane; and this circumstance also necessarily produced what the academicians called the *remou*, or accumulation on the anterior part of the body, and depression behind it. This produced an additional resistance, which was measured with great difficulty and uncertainty. The effect of adhesion must also have been very considerable, and very different in the different cases; and it is of difficult calculation. It cannot perhaps be totally removed in any experiment; and it is necessary to consider it as making part of the resistance in the most important practical cases, viz. the motion of ships. Here we see that its effect is very great. Every seaman knows that the speed, even of a copper-sheathed ship, is *greatly* increased by greasing her bottom. The difference is too remarkable to admit of a doubt: nor should we be surprised at this, when we attend to the diminution of the motion of water in long pipes. A smooth pipe four and an half inches diameter, and 500 yards long, yields but one-fifth of the quantity which it ought to do independent of friction. But adhesion does a great deal which cannot be compared with friction. We see that water flowing thro' a hole in a thin plate will be increased in quantity fully one-third, by adding a little tube whose length is about twice the diameter of the hole. The adhesion therefore will greatly modify the action of the filaments both on the solid body and on each other, and will change both the forms of the curves and the velocities in different points; and this is a sort of objection to the only hypothesis introduced by d'Alembert. Yet it is only a sort of objection; for the effect of this adhesion, too, must undoubtedly depend on the situation of the particle.

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The form of these experiments of the academy is ill-suited to the examination of the resistance of bodies wholly immersed in the fluid. The form of experiment adopted by Robins for the resistance of air, and afterwards by the Chevalier Borda for water, is free from these inconveniences, and is susceptible of equal accuracy. The great advantage of both is the exact knowledge which they give us of the velocity of the motion; a circumstance essentially necessary, and but imperfectly known in the experiments of Mariotte and others, who examined quiescent bodies exposed to the action of a stream. It is extremely difficult to measure the velocity of a stream. It is very different in its different parts. It is swiftest of all in the middle superficial filament, and diminishes as we recede from this towards the sides or bottom, and the rate of diminution is not precisely known. Could this be ascertained with the necessary precision, we should recommend the following form of experiment as the most simple, easy, economical, and accurate.

Let *a, b, c, d*, (fig. 19.) be four hooks placed in a horizontal plane at the corners of a rectangular parallelogram, the sides *ac, bd* being parallel to the direction of the stream ABCD, and the sides *ab, cd* being perpendicular to it. Let the body G be fastened to

Resistance an axis *ef* of stiff-tempered steel-wire, so that the surface on which the fluid is to act may be inclined to the stream in the precise angle we desire. Let this axis have hooks at its extremities, which are hitched into the loops of four equal threads, suspended from the hooks *a, b, c, d*; and let *He* be a fifth thread, suspended from the middle of the line joining the points of suspension *a, b*. Let *HIK* be a graduated arch, whose centre is *H*, and whose plane is in the direction of the stream. It is evident that the impulse on the body *G* will be measured (by a process well known to every mathematician) by the deviation of the thread *He* from the vertical line *HI*; and this will be done without any intricacy of calculation, or any attention to the centres of gravity, of oscillation, or of percussion. These must be accurately ascertained with respect to that form in which the pendulum has always been employed for measuring the impulse or velocity of a stream. These advantages arise from the circumstance, that the axis *ef* remains always parallel to the horizon. We may be allowed to observe, by the by, that this would have been a great improvement of the beautiful experiments of Mr Robins and Dr Hutton on the velocities of cannon-shot, and would have saved much intricate calculation, and been attended with many important advantages.

The great difficulty is, as we have observed, to measure the velocity of the stream. Even this may be done in this way with some precision. Let two floating bodies be dragged along the surface, as in the experiments of the academy, at some distance from each other laterally, so that the water between them may not be sensibly disturbed. Let a horizontal bar be attached to them, transverse to the direction of their motion, at a proper height above the surface, and let a spherical pendulum be suspended from this, or let it be suspended from four points, as here described. Now let the deviation of this pendulum be noted in a variety of velocities. This will give us the law of relation between the velocity and the deviation of the pendulum. Now, in making experiments on the resistance of bodies, let the velocity of the stream, in the very filament in which the resistance is measured, be determined by the deviation of this pendulum.

It were greatly to be wished that some more palpable argument could be found for the existence of a quantity of stagnant fluid at the anterior and posterior parts of the body. The one already given, derived from the consideration that no motion changes either its velocity or direction by finite quantities in an instant, is unexceptionable. But it gives us little information. The smallest conceivable extent of the curve *FM* in fig. 16. will answer this condition, provided only that it touches the axis in some point *F*, and the body in some point *M*, so as not to make a finite angle with either. But surely there are circumstances which rigorously determine the extent of this stagnant fluid. And it appears without doubt, that if there were no cohesion or friction, this space will have a determined ratio to the size of the body (the figures of the bodies being supposed similar). Suppose a plane surface *AB*, as in fig. 10. there can be no doubt but that the figure *AaDdB* will in every case be similar. But if we suppose an adhesion or tenacity which is constant, this may make a change both in its extent and its form: for its con-

stancy of form depends on the disturbing forces being always as the squares of the velocity; and this ratio of the disturbing forces is preserved, while the inertia of the fluid is the only agent and patient in the process. But when we add to this the constant (that is, invariable) disturbing force of tenacity, a change of form and dimensions must happen. In like manner, the friction, or something analogous to friction, which produces an effect proportional to the velocity, must alter this necessary ratio of the whole disturbing forces. We may conclude, that the effect of both these circumstances will be to diminish the quantity of this stagnant fluid, by licking it away externally; and to this we must ascribe the fact, that the part *FAM* is never perfectly stagnant, but is generally disturbed with a whirling motion. We may also conclude, that this stagnant fluid will be more incurvated between *F* and *M* than it would have been, independent of tenacity and friction; and that the arch *LR* will, on the contrary, be less incurvated.—And, lastly, we may conclude, that there will be something opposite to pressure, or something which we may call *abstraction*, exerted on the posterior part of the body which moves in a tenacious fluid, or is exposed to the stream of such a fluid; for the stagnant fluid *LCR* adheres to the surface *LC*; and the passing fluid tends to draw it away both by its tenacity and by its friction. This must augment the apparent impulse of the stream on such a body; and it must greatly augment the resistance, that is, the motion lost by this body in its progress through the tenacious fluid: for the body must drag along with it this stagnant fluid, and drag it in opposition to the tenacity and friction of the surrounding fluid. The effect of this is most remarkably seen in the resistances to the motion of pendulums; and the chevalier Buat, in his examination of Newton's experiments, clearly shows that this constitutes the greatest part of the resistance.

This most ingenious writer has paid great attention to this part of the process of nature, and has laid the foundation of a theory of resistance entirely different from all the preceding. We cannot abridge it; and it is too imperfect in its present condition to be offered as a body of doctrine: but we hope that the ingenious author will prosecute the subject.

We cannot conclude this dissertation (which we account to be very unsatisfactory and imperfect) better, than by giving an account of some experiments of the chevalier Buat, which seem of immense consequence, and tend to give us very new views of the subject. Mr Buat observed the motion of water issuing from a glass cylinder through a narrow ring formed by a bottom of smaller diameter; that is, the cylinder was open at both ends, and there was placed at its lower end a circle of smaller diameter, by way of bottom, which left a ring all around. He threw some powdered sealing wax into the water, and observed with great attention the motion of its small particles. He saw those which happened to be in the very axis of the cylinder descend along the axis with a motion pretty uniform, till they came very near the bottom; from this they continued to descend very slowly, till they were almost in contact with the bottom; they then deviated from the centre, and approached the orifice in straight

straight lines and with an accelerated motion, and at last darted into the orifice with great rapidity. He had observed a thing similar to this in a horizontal canal, in which he had set up a small board like a dam or bar, over which the water flowed. He had thrown a gooseberry into the water, in order to measure the velocity at the bottom, the gooseberry being a small matter heavier than water. It approached the dam uniformly till about three inches from it. Here it almost stood still, but it continued to advance till almost in contact. It then rose from the bottom along the inside of the dam with an accelerated motion, and quickly escaped over the top.

Hence he concluded, that the water which covers the anterior part of the body exposed to the stream is not perfectly stagnant, and that the filaments recede from the axis in curves, which converge to the surface of the body as different hyperbolas converge to the same asymptote, and that they move with a velocity continually increasing till they escape round the sides of the body.

He had established (by a pretty reasonable theory, confirmed by experiment) a proposition concerning the pressure which water in motion exerts on the surface along which it glides, viz. *that the pressure is equal to that which it would exert if at rest minus the weight of the column whose height would produce the velocity of the passing stream.* Consequently the pressure which the stream exerts on the surface perpendicularly exposed to it will depend on the velocity with which it glides along it, and will diminish from the centre to the circumference. This, says he, may be the reason why the impulse on a plane wholly immersed is but one half of that on a plane which deflects the whole stream.

He contrived a very ingenious instrument for examining this theory. A square brass plate ABGF (fig. 20.) was pierced with a great number of holes, and fixed in the front of a shallow box represented edgewise in fig. 21. The back of this box was pierced with a hole *c*, in which was inserted the tube of glass CDE, bent square at D. This instrument was exposed to a stream of water, which beat on the brass plate. The water having filled the box through the holes, stood at an equal height in the glass tube when the surrounding water was stagnant; but when it was in motion, it always stood in the tube above the level of the smooth water without, and thus indicated the pressure occasioned by the action of the stream.

When the instrument was not wholly immersed, there was always a considerable accumulation against the front of the box, and a depression behind it. The water before it was by no means stagnant: indeed it should not be, as Mr Buat observes; for it consists of the water which was escaping on all sides, and therefore upwards from the axis of the stream, which meets the plate perpendicularly in *c* considerably under the surface. It escapes upwards; and if the body were sufficiently immersed, it would escape in this direction almost as easily as laterally. But in the present circumstances, it heaps up, till the elevation occasions it to fall off sideways as fast as it is renewed. When the instrument was immersed more than its semidiameter under the surface, the water still rose above the level, and there was a great depression immediately behind this elevation. In consequence of this difficulty of escaping upwards, the wa-

ter flows off laterally; and if the horizontal dimensions of the surface is great, this lateral efflux becomes more difficult, and requires a greater accumulation. From this it happens, that the resistance of broad surfaces equally immersed is greater than in the proportion of the breadth. A plane of two feet wide and one foot deep, when it is not completely immersed, will be more resisted than a plane two feet deep and one foot wide; for there will be an accumulation against both: and even if these were equal in height, the additional surface will be greatest in the widest body; and the elevation will be greater, because the lateral escape is more difficult.

The circumstances chiefly to be attended to are these.

The pressure on the centre was much greater than towards the border, and, in general, the height of the water in the tube DE was more than $\frac{4}{5}$ of the height necessary for producing the velocity when only the central hole was open. When various holes were opened at different distances from the centre, the height of the water in DH continually diminished as the hole was nearer the border. At a certain distance from the border the water at E was level with the surrounding water, so that no pressure was exerted on that hole. But the most unexpected and remarkable circumstance was, that, in great velocities, the holes at the very border, and even to a small distance from it, not only sustained no pressure, but even gave out water; for the water in the tube was lower than the surrounding water. Mr Buat calls this a *non-pressure*. In a case in which the velocity of the stream was three feet, and the pressure on the central hole caused the water in the vertical tube to stand 33 lines or $\frac{1}{4}$ of an inch above the level of the surrounding smooth water, the action on a hole at the lower corner of the square caused it to stand 12 lines lower than the surrounding water. Now the velocity of the stream in this experiment was 36 inches per second. This requires $21\frac{1}{2}$ lines for its productive fall; whereas the pressure on the central hole was 33. This approaches to the pressure on a surface which deflects it wholly. The intermediate holes gave every variation of pressure, and the diminution was more rapid as the holes were nearer the edge; but the law of diminution could not be observed.

This is quite a new and most unexpected circumstance in the action of fluids on solid bodies, and renders the subject more intricate than ever; yet it is by no means inconsistent with the genuine principles of hydrostatics or hydraulics. In as far as Mr Buat's proposition concerning the pressure of moving fluids is true, it is very reasonable to say, that when the lateral velocity with which the fluid tends to escape exceeds the velocity of percussion, the height necessary for producing this velocity must exceed that which would produce the other, and a non-pressure must be observed. And if we consider the forms of the lateral filaments near the edge of the body, we see that the concavity of the curve is turned towards the body, and that the centrifugal forces tend to diminish their pressure on the body. If the middle alone were struck with a considerable velocity, the water might even rebound, as is frequently observed. This *actual* rebounding is here prevented by the surrounding water, which is moving with the same velocity: but the

Resistance.

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Circumstances chiefly to be attended to in using this instrument.

70
Remarkable circumstance.

71
Not inconsistent with the principles of hydrostatics or hydraulics.

Resistance. the pressure may be almost annihilated by the tendency to rebound of the inner filaments.

Part (and perhaps a considerable part) of this apparent non-pressure is undoubtedly produced by the tenacity of the water, which sticks off with it the water lying in the hole. But, at any rate, this is an important fact, and gives great value to these experiments. It gives a key to many curious phenomena in the resistance of fluids; and the theory of Mr Buat deserves a very serious consideration. It is all contained in the two following propositions.

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Substance
of Buat's
theory.

1. "If, by any cause whatever, a column of fluid, whether making part of an indefinite fluid, or contained in solid canals, comes to move with a given velocity, the pressure which it exerted laterally before its motion, either on the adjoining fluid or on the sides of the canal, is diminished by the weight of a column having the height necessary for communicating the velocity of the motion.

2. "The pressure on the centre of a plane surface perpendicular to the stream, and wholly immersed in it, is $\frac{1}{2}$ of the weight of a column having the height necessary for communicating the velocity. For 33 is $\frac{1}{2}$ of 21 $\frac{1}{2}$."

73
Experiments by
which it is
confirmed.

He attempted to ascertain the medium pressure on the whole surface, by opening 625 holes dispersed all over it. With the same velocity of current, he found the height in the tube to be 29 lines, or $7\frac{7}{8}$ more than the height necessary for producing the velocity. But he justly concluded this to be too great a measure, because the holes were $\frac{1}{4}$ of an inch from the edge: had there been holes at the very edge, they would have sustained a non-pressure, which would have diminished the height in the tube very considerably. He exposed to the same stream a conical funnel, which raised the water to 34 lines. But this could not be considered as a measure of the pressure on a plane solid surface; for the central water was undoubtedly scooped out, as it were, and the filaments much more deflected than they would have been by a plane surface. Perhaps something of this happened even in every small hole in the former experiments. And this suggests some doubt as to the accuracy of the measurement of the pressure and of the velocity of a current by Mr Pitot's tube. It surely renders some corrections absolutely necessary. It is a fact, that when exposed to a vein of fluid coming through a short passage, the water in the tube stands on a level with that in the reservoir. Now we know that the velocity of this stream does not exceed what would be produced by a fall equal to $\frac{82}{100}$ of the head of water in the reservoir. Mr Buat made many valuable observations and improvements on this most useful instrument, which will be taken notice of in the articles RIVERS and WATER-Works.

Mr Buat, by a scrupulous attention to all the circumstances, concludes, that the medium of pressure on the whole surface is equal to $\frac{25,5}{21,5}$ of the weight of a column, having the surface for its base, and the productive fall for its height. But we think that there is an uncertainty in this conclusion; because the height of the water in the vertical tube was undoubtedly augmented by an hydrostatical pressure arising from the accumulation of water above the body which was exposed to the stream.

Since the pressures are as the squares of the veloci-

ties, or as the heights h which produce the velocities, Resistance.

we may express this pressure by the symbol $\frac{25,5}{21,5} b$, or $1,186 b$, or $m b$, the value of m being 1,186. This exceeds considerably the result of the experiments of the French academy. In these it does not appear that m sensibly exceeds unity. Note, that in these experiments the body was moved through still water; here it is exposed to a stream. These are generally supposed to be equivalent, on the authority of the third law of motion, which makes every action depend on the relative motions. We shall by and by see some causes of difference.

The writers on this subject seem to think their task completed when they have considered the action of the fluid on the anterior part of the body, or that part of it which is before the broadest section, and have paid little or no attention to the hinder part. Yet those who are most interested in the subject, the naval architects, seem convinced that it is of no less importance to attend to the form of the hinder part of a ship. And the universal practice of all nations has been to make the hinder part more acute than the fore-part. This has undoubtedly been deduced from experience; for it is in direct opposition to any notions which a person would naturally form on this subject. Mr Buat therefore thought it very necessary to examine the action of the water on the hinder part of a body by the same method. And, previous to this examination, in order to acquire some scientific notions of the subject, he made the following very curious and instructive experiment.

Two little conical pipes AB (fig. 22.) were inserted into the upright side of a prismatic vessel. They were an inch long, and their diameters at the inner and outer ends were five and four lines. A was 57 lines under the surface, and B was 73. A glass syphon was made of the shape represented in the figure, and its internal diameter was $1\frac{1}{4}$ lines. It was placed with its mouth in the axis, and even with the base of the conical pipe. The pipes being shut, the vessel was filled with water, and it was made to stand on a level in the two legs of the syphon, the upper part being full of air. When this syphon was applied to the pipe A, and the water running freely, it rose 32 lines in the short leg, and sunk as much in the other. When it was applied to the pipe B, the water rose 41 lines in the one leg of the syphon, and sunk as much in the other.

He reasons in this manner from the experiment. The ring comprehended between the end of the syphon and the sides of the conical tube being the narrowest part of the orifice, the water issued with the velocity corresponding to the height of the water in the vessel above the orifice, diminished for the contraction. If therefore the cylinder of water immediately before the mouth of the syphon issued with the same velocity, the tube would be emptied through a height equal to this HEAD OF WATER (charge). If, on the contrary, this cylinder of water, immediately before the mouth of the syphon, were stagnant, the water in it would exert its full pressure on the mouth of the syphon, and the water in the syphon would be level with the water in the vessel. Between these extremes we must find the real state of the case, and we must measure the force of non-pressure by the rise of the water in the syphon.

We see that in both experiments it bears an accurate proportion.

proportion to the depth under the surface. For 57 : 73 = 32 : 41 very nearly. He therefore estimates the non-pressure to be $\frac{1}{10}$ of the height of the water above the orifice.

We are disposed to think that the ingenious author has not reasoned accurately from the experiment. In the first place, the force indicated by the experiment, whatever be its origin, is certainly double of what he supposes; for it must be measured by the sum of the rise of the water in one leg, and its depression in the other, the weight of the air in the bend of the syphon being neglected. It is precisely analogous to the force acting on the water oscillating in a syphon, which is acknowledged to be the sum of the elevation and depression. The force indicated by the experiment therefore is $\frac{1}{10}$ of the height of the water above the orifice. The force exhibited in this experiment bears a still greater proportion to the productive height; for it is certain that the water *did not* issue with the velocity acquired by the fall from the surface, and probably did not exceed $\frac{1}{2}$ of it. The effect of contraction must have been considerable and uncertain. The velocity should have been measured both by the amplitude of the jet and by the quantity of water discharged. In the next place, we apprehend that much of the effect is produced by the tenacity of the water, which drags along with it the water which would have slowly issued from the syphon, had the other end not dipped into the water of the vessel. We know, that if the horizontal part of the syphon had been continued far enough, and if no retardation were occasioned by friction, the column of water in the upright leg would have accelerated like any heavy body; and when the last of it had arrived at the bottom of that leg, the whole in the horizontal part would be moving with the velocity acquired by falling from the surface. The water of the vessel which issues through the surrounding ring very quickly acquires a much greater velocity than what the water descending in the syphon would acquire in the same time, and it drags this last water along with it both by tenacity and friction, and it drags it out till its action is opposed by the want of equilibrium produced in the syphon, by the elevation in the one leg and the depression in the other. We imagine that little can be concluded from the experiment with respect to the real non-pressure. Nay, if the sides of the syphon be supposed infinitely thin, so that there would be no curvature of the filaments of the surrounding water at the mouth of the syphon, we do not very distinctly see any source of non-pressure: For we are not altogether satisfied with the proof which Mr. Buat offers for this measure of the pressure of a stream of fluid gliding along a surface, and *obstructed by friction or any other cause*. We imagine that the passing water in the present experiment would be a little retarded by accelerating continually the water descending in the syphon, and renewed at-top, supposing the upper end open; because this water would not of itself acquire more than half this velocity. It however drags it out, till it not only resists with a force equal to the weight of the whole vertical column, but even exceeds it by $\frac{1}{10}$. This it is able to do, because the whole pressure by which the water issues from an orifice has been shown (by Daniel Bernoulli) to be equal to twice this weight. We therefore consider this beautiful experiment as chiefly valuable, by giving us a mea-

sure of the tenacity of the water; and we wish that it were repeated in a variety of depths, in order to discover what relation the force exerted bears to the depth. It would seem that the tenacity, being a certain determinate thing, the proportion of 100 to 112 would not be constant; and that the observed ratio would be made up of two parts, one of them constant, and the other proportional to the depth under the surface.

But still this experiment is intimately connected with the matter in hand; and this apparent non-pressure on the hinder part of a body exposed to a stream, from whatever causes it proceeds, does operate in the action of water on this hinder part, and must be taken into the account.

We must therefore follow the Chevalier de Buat in his discussions on this subject. A prismatic body, having its prow and poop equal and parallel surfaces, and plunged horizontally into a fluid, will require a force to keep it firm in the direction of its axis precisely equal to the difference between the real pressures exerted on its prow and poop. If the fluid is at rest, this difference will be nothing, because the opposite dead pressures of the fluid will be equal: but in a stream, there is superadded to the dead pressure on the prow the active pressure arising from the deflections of the filaments of this fluid.

If the dead pressure on the poop remained in its full intensity by the perfect stagnation of the water behind it, the whole sensible pressure on the body would be the active pressure only on the prow, represented by mb . If, on the other hand, we could suppose that the water behind the body moved continually away from it (being renewed laterally) with the velocity of the stream, the dead pressure would be entirely removed from its poop, and the whole sensible pressure, or what must be opposed by some external force, would be $mb + b$. Neither of these can happen; and the real state of the case must be between these extremes.

The following experiments were tried: The perforated box with its vertical tube was exposed to the stream, the brass plate being turned down the stream. The velocity was again 36 inches per second.

The central hole A alone being opened, gave a non-pressure of 13 lines.

A hole B, $\frac{1}{2}$ of an inch from the edge; gave 15

A hole C, near the surface 15.7

A hole D, at the lower angle 15.3

Here it appears that there is a very considerable non-pressure, increasing from the centre to the border. This increase undoubtedly proceeds from the greater lateral velocity with which the water is gliding in from the sides. The water behind was by no means stagnant, although moving off with a much smaller velocity than that of the passing stream, and it was visibly removed from the sides, and gradually licked away at its further extremity.

Another box, having a great number of holes, all open, indicated a medium of non-pressure equal to 13.1 lines.

Another of larger dimensions, but having fewer holes, indicated a non-pressure of $12\frac{1}{2}$.

But the most remarkable, and the most important phenomena, were the following:

The first box was fixed to the side of another box,

Resistance.

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Further
discussion
of De
Buat.

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Experi-
ments.

Resistance to that, when all was made smooth, it made a perfect cube, of which the perforated brass plate made the poop.

The apparatus being now exposed to the stream, with the perforated plate looking down the stream,

The hole A indicated a non-pressure	-	=	7,2
B	-	-	8
C	-	-	6

Here was a great diminution of the non-pressures produced by the distance between the prow and the poop.

This box was then fitted in the same manner, so as to make the poop of a box three feet long. In this situation the non-pressures were as follow:

Hole A	-	-	1,5
B	-	-	3,2

The non-pressures were still farther diminished by this increase of length.

The box was then exposed with all the holes open, in three different situations:

1st, Single, giving a non-pressure	-	13,1
2d, Making the poop of a cube	-	5,3
3d, Making the poop of a box three feet long	-	3,0

Another larger box:

1st, Single	-	12,2
2d, Poop of a cube	-	5,
3d, Poop of the long box	-	3,2

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Great utility of them in ship-building.

These are most valuable experiments. They plainly show how important it is to consider the action on the hinder part of the body. For the whole impulse or resistance, which must be withstood or overcome by the external force, is the sum of the active pressure on the fore-part, and of the non-pressure on the hinder-part; and they show that this does not depend solely on the form of the prow and poop, but also, and perhaps chiefly, on the length of the body. We see that the non-pressure on the hinder-part was prodigiously diminished (reduced to one-fourth) by making the length of the body triple of the breadth. And hence it appears, that merely lengthening a ship, without making any change in the form either of her prow or her poop, will greatly diminish the resistance to her motion through the water; and this increase of length may be made by continuing the form of the midship frame in several timbers along the keel, by which the capacity of the ship, and her power of carrying sail, will be greatly increased, and her other qualities improved, while her speed is augmented.

81
Physical cause of it explained.

It is surely of importance to consider a little the physical cause of this change. The motions are extremely complicated, and we must be contented if we can but perceive a few leading circumstances.

The water is turned aside by the anterior part of the body, and the velocity of the filaments is increased, and they acquire a divergent motion, by which they also push aside the surrounding water. On each side of the body, therefore, they are moving in a divergent direction, and with an increased velocity. But as they are on all sides pressed by the fluid without them, their motions gradually approach to parallelism, and their velocities to an equality with the stream. The progressive velocity, or that in the direction of the stream, is checked, at least at first. But since we observe the filaments constricted round the body, and that they are not deflected at right angles to their former direction,

it is plain that the real velocity of a filament in its oblique path is augmented. We always observe, that a stone lying in the sand, and exposed to the wash of the sea, is laid bare at the bottom, and the sand is generally washed away to some distance all round. This is owing to the increased velocity of the water which comes into contact with the stone. It takes up more sand than it can keep floating, and it deposits it at a little distance all around, forming a little bank, which surrounds the stone at a small distance. When the filaments of water have passed the body, they are pressed by the ambient fluid into the place which it has quitted, and they glide round its stern, and fill up the space behind. The more divergent and the more rapid they are, when about to fall in behind, the more of the circumambient pressure must be employed to turn them into the trough behind the body, and less of it will remain to press them to the body itself. The extreme of this must obtain when the stream is obstructed by a thin plane only. But when there is some distance between the prow and the poop, the divergency of the filaments which had been turned aside by the prow, is diminished by the time that they have come abreast of the stern, and should turn in behind it. They are therefore more readily made to converge behind the body, and a more considerable part of the surrounding pressure remains unexpended, and therefore presses the water against the stern; and it is evident that this advantage must be so much the greater as the body is longer. But the advantage will soon be susceptible of no very considerable increase: for the lateral and divergent, and accelerated filaments, will soon become so nearly parallel and equally rapid with the rest of the stream, that a great increase of length will not make any considerable change in these particulars; and it must be accompanied with an increase of friction.

These are very obvious reflections. And if we attend minutely to the way in which the almost stagnant fluid behind the body is expended and renewed, we shall see all these effects confirmed and augmented. But as we cannot say any thing on this subject that is precise, or that can be made the subject of computation, it is needless to enter into a more minute discussion. The diminution of the non-pressure towards the centre must probably arise from the smaller force which is necessary to be expended in the inflection of the lateral filaments, already inflected in some degree, and leaving their velocity diminished. But it is a subject highly deserving the attention of the mathematicians; and we presume to invite them to the study of the motions of these lateral filaments, passing the body, and pressed into its wake by forces which are susceptible of no difficult investigation. It seems highly probable, that if a prismatic box, with a square stern, were fitted with an addition precisely shaped like the water which would (abstracting tenacity and friction) have been stagnant behind it, the quantity of non-pressure would be the smallest possible. The mathematician would surely discover circumstances which would furnish some maxims of construction for the hinder part as well as for the prow. And as his speculations on this last have not been wholly fruitless, we may expect advantages from his attention to this part, so much neglected.

In the mean time, let us attend to the deductions which Mr de Buat has made from his few experiments.

distance. When the velocity is three feet per second, requiring the productive height 21,5 lines, the heights corresponding to the non-pressure on the poop of a thin plane is 14,41 lines (taking in several circumstances of judicious correction, which we have not mentioned), that of a foot cube is 5,83, and that of a box of triple length is 3,31.

Let q express the variable ratio of these to the height producing the velocity, so that qb may express the non-pressure in every case; we have,

For a thin plane	$q = 0,67$
a cube	0,271
a box = 3 cubes	0,153

It is evident that the value of q has a dependence on the proportion of the length, and the transverse section of the body. A series of experiments on prismatic bodies showed Mr de Buat that the deviation of the filaments was similar in similar bodies, and that this obtained even in dissimilar prisms, when the lengths were as the square-roots of the transverse sections. Although therefore the experiments were not sufficiently numerous for deducing the precise law, it seemed not impossible to derive from them a very useful approximation. By a dexterous comparison he found, that if l expresses the length of the prism, and s the area of the transverse section, and L expresses the common logarithm of the quantity to which it is prefixed, we shall express the non-pressure pretty accurately by the formula $\frac{1}{q} = L(1,42 \frac{l}{\sqrt{s}})$.

Hence arises an important remark, that when the height corresponding to the non-pressure is greater than \sqrt{s} , and the body is little immersed in the fluid, there will be a void behind it. Thus a surface of a square inch, just immersed in a current of three feet per second, will have a void behind it. A foot square will be in a similar condition when the velocity is 12 feet.

We must be careful to distinguish this non-pressure from the other causes of resistance, which are always necessarily combined with it. It is superadditive to the active impression on the prow, to the statical pressure of the accumulation ahead of the body, the statical pressure arising from the depression behind it, the effects of friction, and the effects of tenacity. It is indeed next to impossible to estimate them separately, and many of them are actually combined in the measures now given. Nothing can determine the pure non-pressures till we can ascertain the motions of the filaments.

Mr de Buat here takes occasion to controvert the universally adopted maxim, that the pressure occasioned by a stream of fluid on a fixed body is the same with that on a body moving with equal velocity in a quiescent fluid. He repeated all these experiments with the perforated box in still water. The general distinction was, that both the pressures and the non-pressure in this case was less, and that the odds was chiefly to be observed near the edges of the surface. The general factor of the pressure of a stream on the anterior surface was $m = 1,186$; but that on a body moving through a still fluid is only $m = 1$. He observed no non-pressure even at the very edge of the prow, but even a sensible pressure. The pressure, therefore, or resistance, is more equally diffused over the surface of the prow than the impulse is.—He also found that the resistances diminished in a less ratio than the squares of the velocities, especially in small velocities.

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The non-pressures increased in a greater ratio than the squares of the velocities. The ratio of the velocities to a small velocity of $2\frac{1}{2}$ inches per second increased geometrically, the value of q increased arithmetically; and we may determine q for any velocity V by this proportion

$$L \frac{55}{2,2} : L \frac{V}{2,2} = 0,5 : q, \text{ and } q = \frac{L \frac{V}{2,2}}{2,8}. \text{ That is,}$$

let the common logarithm of the velocity, divided by $2\frac{1}{2}$, be considered as a common number; divide this common number by $2\frac{1}{2}$, the quotient is q , which must be multiplied by the productive height. The product is the pressure.

When Pitot's tube was exposed to the stream, we had $m = 1$; but when it is carried through still water, m is $1,22$. When it was turned from the stream, we had $q = 0,157$; but when carried through still water, q is $0,138$. A remarkable experiment.

When the tube was moved laterally through the water, so that the motion was in the direction of the plane of its mouth, the non-pressure was $= 1$. This is one of his chief arguments for his theory of non-pressure. He does not give the detail of the experiment, and only inserts the result in his table.

As a body exposed to a stream deflects the fluid, heaps it up, and increases its velocity; so a body moved through a still fluid turns it aside, causes it to swell up before it, and gives it a real motion alongside of it in the opposite direction. And as the body exposed to a stream has a quantity of fluid almost stagnant both before and behind; so a body moved through a still fluid carries before it and drags after it a quantity of fluid, which accompanies it with nearly an equal velocity. This addition to the quantity of matter in motion must make a diminution of its velocity; and this forms a very considerable part of the observed resistance.

We cannot, however, help remarking that it would require very distinct and strong proof indeed to overturn the common opinion, which is founded on our most certain and simple conceptions of motion, and on a law of nature to which we have never observed an exception. Mr de Buat's experiments, tho' most judiciously contrived, and executed with scrupulous care, are by no means of this kind. They were, of absolute necessity, very complicated; and many circumstances, impossible to avoid or to appreciate, rendered the observation, or at least the comparison, of the velocities, very uncertain.

We can see but two circumstances which do not admit of an easy or immediate comparison in the two states of the problem. When a body is exposed to a stream in our experiments, in order to have an impulse made on it, there is a force tending to move the body backwards, independent of the real impulse or pressure occasioned by the deflection of the stream. We cannot have a stream except in consequence of a sloping surface. Suppose a body floating on this stream. It will not only sail down along with the stream, but it will sail down the stream, and will therefore go faster along the canal than the stream does: for it is floating on an inclined plane; and if we examine it by the laws of hydrostatics, we shall find, that besides its own tendency to slide down this inclined plane, there is an odds of hydrostatical pressure, which pushes it down this plane. It will therefore go along the canal faster than the stream. For this acceleration depends on the difference of pressure at the two ends, and will be more remarkable

Resistance. markable as the body is larger, and especially as it is longer. This may be distinctly observed. All floating bodies go into the stream of the river, because there they find the smallest obstruction to the acquisition of this motion along the inclined plane; and when a number of bodies are thus floating down the stream, the largest and longest outstrip the rest. A log of wood floating down in this manner may be observed to make its way very fast among the chips and saw-dust which float alongside of it.

Now when, in the course of our experiments, a body is supported against the action of a stream, and the impulse is measured by the force employed to support it, it is plain that part of this force is employed to act against that tendency which the body has to outstrip the stream. This does not appear in our experiment, when we move a body with the velocity of this stream through still water having a horizontal surface.

The other distinguishing circumstance is, that the retardations of a stream arising from friction are found to be nearly as the velocities. When, therefore, a stream moving in a limited canal is checked by a body put in its way, the diminution of velocity occasioned by the friction of the stream having already produced its effect, the impulse is not affected by it; but when the body puts the still water in motion, the friction of the bottom produces some effect, by retarding the recess of the water. This, however, must be next to nothing.

The chief difference will arise from its being almost impossible to make an exact comparison of the velocities: for when a body is moved against the stream, the relative velocity is the same in all the filaments. But when we expose a body to a stream, the velocity of the different filaments is not the same; because it decreases from the middle of the stream to the sides.

87.
Mr Buat's
calculation
of resist-
ance,

Mr Buat found the total sensible resistance of a plate 12 inches square, and measured, not by the height of water in the tube of the perforated box, but by weights acting on the arm of a balance, having its centre 15 inches under the surface of a stream moving three feet per second, to be 19.46 pounds; that of a cube of the same dimensions was 15.22; and that of a prism three feet long was 13.87; that of a prism six feet long was 14.27. The three first agree extremely well with the determination of m and q , by the experiments with the perforated box. The total resistance of the last was undoubtedly much increased by friction, and by the retrograde force of so long a prism floating in an inclined stream. This last by computation is 0.223 pounds; this added to $b(m+q)$, which is 13.59, gives 13.81, leaving 0.46 for the effect of friction.

If the same resistances be computed on the supposition that the body moves in still water, in which case we have $m=1$, and q for a thin plate = 0.433; and if q be computed for the lengths of the other two bodies by the formula $\frac{1}{q} = L \cdot 1.42 + \frac{l}{\sqrt{s}}$; we shall get for

the resistances 14.94; 12.22; and 11.49.

88.
And of these two states are nearly in the ratio of 13 to 10. Hence Mr Buat concludes, that the resistances in This, he thinks, will account for the difference observed in the experiments of different authors.

Mr Buat next endeavours to ascertain the quantity of water which is made to adhere in some degree to a body moving in still water, &c.

body which is carried along thro' still water, or which remains nearly stagnant in the midst of a stream. He takes the sum of the motions in the direction of the stream, viz. the sum of the actual motions of all those particles which have lost part of their motion, and he divides this sum by the general velocity of the stream. The quotient is equivalent to a certain quantity of water perfectly stagnant round the body. Without being able to determine this with precision, he observes, that it augments as the resistance diminishes; for in the case of a longer body, the filaments are observed to converge to a greater distance behind the body. The stagnant mass ahead of the body is more constant; for the deflection and resistance at the prow are observed not to be affected by the length of the body. Mr Buat, by a very nice analysis of many circumstances, comes to this conclusion, that the whole quantity of fluid, which in this manner accompanies the solid body, remains the same whatever is the velocity. He might have deduced it at once, from the consideration that the curves described by the filaments are the same in all velocities.

He then relates a number of experiments made to find certain the absolute quantity thus made to accompany the body. These were made by causing pendulums to oscillate in fluids. Newton had determined the resistances to such oscillation by the diminution of the arches of vibration. Mr Buat determines the quantity of dragged fluid by the increase of their duration; for this stagnation or dragging is in fact adding a quantity of matter to be moved, without any addition to the moving force. It was ingeniously observed by Newton, that the time of oscillation was not sensibly affected by the resistance of the fluid: a compensation, almost complete, being made by the diminution of the arches of vibration; and experiment confirmed this. If, therefore, a great augmentation of the time of vibration be observed, it must be ascribed to the additional quantity of matter which is thus dragged into motion, and it may be employed for its measurement. Thus, let a be the length of a pendulum swinging seconds in vacuo, and l the length of a second's pendulum swinging in a fluid. Let p be the weight of the body in the fluid, and P the weight of the fluid displaced by it; $P+p$ will express its weight in vacuo, and $\frac{P+p}{p}$ will be the ratio

of these weights. We shall therefore have $\frac{P+p}{p} = \frac{a}{l}$ and $l = \frac{ap}{P+p}$.

Let nP express the sum of the fluid displaced, and the fluid dragged along, n being a number greater than unity, to be determined by experiment. The mass in motion is no longer $P+p$, but $P+nP$, while its weight in the fluid is still p . Therefore we must have

$$l = \frac{ap}{nP+p} = \frac{a}{nP+1}, \text{ and } n = \frac{p}{P} \left(\frac{a}{l} - 1 \right).$$

A prodigious number of experiments made by Mr Buat on spheres vibrating in water gave values of n , which were very constant, namely, from 1.5 to 1.7; and by considering the circumstances which accompanied the variations of n (which he found to arise chiefly from the curvature of the path described by the ball),

distance, ball), he states the mean value of the number n at 1,583. So that a sphere in motion drags along with it about $\frac{1}{7}$ of its own bulk of fluid with a velocity equal to its own.

He made similar experiments with prisms, pyramids, and other bodies, and found a complete confirmation of his assertion, that prisms of equal lengths and sections, though dissimilar, dragged equal quantities of fluid; that similar prisms and pyramids not similar, but whose length were as the square-root of their sections, dragged quantities proportional to their bulks.

He found a general value of n for prismatic bodies, which alone may be considered as a valuable truth;

namely, that $n = 0,705 \sqrt{\frac{1}{7}} + 1,13$.

From all these circumstances, we see an intimate connection between the pressures, non-pressures, and the fluid dragged along with the body. Indeed this is immediately deducible from the first principles; for what Mr Buat calls the *dragged fluid* is in fact a certain portion of the whole change of motion produced in the direction of the bodies motion.

It was found, that with respect to thin planes, spheres, and pyramidal bodies of equal bases, the resistances were inversely as the quantities of fluid dragged along.

The intelligent reader will readily observe, that these views of the Chevalier Buat are not so much discoveries of new principles as they are classifications of consequences, which may all be deduced from the general principles employed by D'Alembert and other mathematicians. But they greatly assist us in forming notions of different parts of the procedure of nature in the mutual action of fluids and solids on each other. This must be very acceptable in a subject which it is by no means probable that we shall be able to investigate with mathematical precision. We have given an account of these last observations, that we may omit nothing of consequence that has been written on the subject; and we take this opportunity of recommending the *Hydraulique* of Mr Buat as a most ingenious work, containing more original, ingenious, and practically useful thoughts, than all the performances we have met with. His doctrine of the *principle of uniform motion of fluids in pipes and open canals*, will be of immense service to all engineers, and enable them to determine with sufficient precision the most important questions in their profession; questions which at present they are hardly able to guess at. See RIVERS and WATER-Works.

The only circumstance which we have not noticed in detail, is the change of resistance produced by the void, or tendency to a void, which obtains behind the body; and we omitted a particular discussion, merely because we could say nothing sufficiently precise on the subject. Persons not accustomed to the discussions in the physico-mathematical sciences, are apt to entertain doubts or false notions connected with this circumstance, which we shall attempt to remove; and with this we shall conclude this long and unsatisfactory dissertation.

If a fluid were perfectly incompressible, and were contained in a vessel incapable of extension, it is impossible that any void could be formed behind the body; and in this case it is not very easy to see how motion could be performed in it. A sphere moved in such a medium could not advance the smallest distance, unless some particles of the fluid, in filling up the space left by it, moved with a velocity next to infinite. Some

degree of compressibility, however small, seems necessary. If this be insensible, it may be rigidly demonstrated, that an external force of compression will make no sensible change in the internal motions, or in the resistances. This indeed is not obvious, but is an immediate consequence of the *quaquaversum* pressure of fluids. As much as the pressure is augmented by the external compressions on one side of a body, so much is it augmented on the other side; and the same must be said of every particle. Nothing more is necessary for securing the same motions by the same partial and internal forces; and this is fully verified by experiment. Water remains equally fluid under any compressions. In some of Sir Isaac Newton's experiments balls of four inches diameter were made so light as to preponderate in water only three grains. These balls descended in the same manner as they would have descended in a fluid where the resistance was equal in every part; yet, when they were near the bottom of a vessel nine feet deep, the compression round them was at least 2400 times the moving force; whereas, when near the top of the vessel, it was not above 50 or 60 times.

But in a fluid sensibly compressible, or which is not confined, a void may be left behind the body. Its motion may be so swift that the surrounding pressure may not suffice for filling up the deserted space; and, in this case, a statical pressure will be added to the resistance. This may be the case in a vessel or pond of water having an open surface exposed to the finite or limited pressure of the atmosphere. The question now is, whether the resistance will be increased by an increase of external pressure? Supposing a sphere moving near the surface of water, and another moving equally fast at four times the depth. If the motion be so swift that a void is formed in both cases, there is no doubt but that the sphere which moves at the greatest depth is most resisted by the pressure of the water. If there is no void in either case, then, because the quadruple depth would cause the water to flow in with only a double velocity, it would seem that the resistance would be greater; and indeed the water flowing in laterally with a double velocity produces a quadruple non-pressure. — But, on the other hand, the pressure at a small depth may be insufficient for preventing a void, while that below effectually prevents it; and this was observed in some experiments of Chevalier de Borda. The effect, therefore, of greater immersion, or of greater compression, in an elastic fluid, does not follow a precise ratio of the pressure, but depends partly on absolute quantities. It cannot, therefore, be stated by any very simple formula what increase or diminution of resistance will result from a greater depth; and it is chiefly on this account that experiments made with models of ships and mills are not conclusive with respect to the performance of a large machine of the same proportions, without corrections, sometimes pretty intricate. We assert, however, with great confidence, that this is of all methods the most exact, and infinitely more certain than any thing that can be deduced from the most elaborate calculation from theory. If the resistances at all depths be equal, the proportionality of the total resistance to the body is exact, and perfectly conformable to observation. It is only in great velocities where the depth has any material influence, and the influence is not near so considerable as we should, at first sight, suppose; for, in estimating the effect of immersion, which has a relation

Resistance. to the difference of pressure, we must always take in the pressure of the atmosphere; and thus the pressure at 33 feet deep is not 33 times the pressure at one foot deep, but only double, or twice as great. The atmospheric pressure is omitted only when the resisted plane is at the very surface. D'Ulloa, in his *Examen Moritimo*, has introduced an equation expressing this relation; but, except with very limited conditions, it will mislead us prodigiously. To give a general notion of its foundation, let AB (fig. 23.) be the section of a plane moving through a fluid in the direction CD, with a known velocity. The fluid will be heaped up before it above its natural level CD, because the water will not be pushed before it like a solid body, but will be pushed aside. And it cannot acquire a lateral motion any other way than by an accumulation, which will diffuse itself in all directions by the law of undulatory motion. The water will also be left lower behind the plane, because time *must* elapse before the pressure of the water behind can make it fill the space. We may acquire some notion of the extent of both the accumulation and depression in this way. There is a certain

depth CF ($= \frac{v^2}{2g}$, where v is the velocity, and g the accelerating power of gravity) under the surface, such that water would flow through a hole at F with the velocity of the plane's motion. Draw a horizontal line FG. The water will certainly touch the plane in G, and we may suppose that it touches it no higher up. Therefore there will be a hollow, such as CGE. The elevation HE will be regulated by considerations nearly similar. ED must be equal to the velocity of the plane, and HE must be its productive height. Thus, if the velocity of the plane be one foot *per* second, HE and EG will be $\frac{1}{16}$ of an inch. This is sufficient (though not exact) for giving us a notion of the thing. We see that from this must arise a pressure in the direction DC, viz. the pressure of the whole column HG.

Something of the same kind will happen although the plane AB be wholly immersed, and this even to some depth. We see such elevations in a swift running stream, where there are large stones at the bottom.—This occasions an excess of pressure in the direction opposite to the plane's motion; and we see that there must, in every case, be a relation between the velocity and this excess of pressure. This D'Ulloa expresses by an equation. But it is very exceptionable, not taking properly into the account the comparative facility with which the water can heap up and diffuse itself. It must always heap up till it acquires a sufficient head of water to produce a lateral and progressive diffusion sufficient for the purpose. It is evident, that a smaller elevation will suffice when the body is more immersed, because the check or impulse given by the body below is propagated, not vertically only, but in every direction; and therefore the elevation is not confined to that part of the surface which is immediately above the moving body, but extends so much farther laterally as the centre of agitation is deeper: Thus, the elevation necessary for the passage of the body is so much smaller; and it is the *height* only of this accumulation or wave which determines the backward pressure on the body. D'Ulloa's equation may happen to quadrate with two experiments at different depths, without being nearly just; for any two points may be in a curve, without exhibiting its

equation. Three points will do it with some approach to precision; but four, at least, are necessary for giving any notion of its nature. D'Ulloa has only given two experiments, which we mentioned in another place.

We may here observe, that it is this circumstance which immediately produces the great resistance to the motion of a body through a fluid in a narrow canal.—The fluid cannot pass the body, unless the area of the section be sufficiently extensive. A narrow canal prevents the extension sidewise. The water must therefore heap up, till the section and velocity of diffusion are sufficiently enlarged, and thus a great backward pressure is produced. (See the second series of Experiments by the French Academicians; see also Franklin's Essays.) It is important, and will be considered in another place.

Thus have we attempted to give our readers some account of one of the most interesting problems in the whole of mechanical philosophy. We are sorry that so little advantage can be derived from the united efforts of the first mathematicians of Europe, and that there is so little hope of greatly improving our scientific knowledge of the subject. What we have delivered will, however, enable our readers to peruse the writings of those who have applied the theories to practical purposes. Such, for instance, are the treatises of John Bernoulli, of Bouguer, and of Euler, on the construction and working of ships, and the occasional dissertations of different authors on water-mills. In this last application the ordinary theory is not without its value, for the impulses are nearly perpendicular; in which case they do not materially deviate from the duplicate proportion of the sine of incidence. But even here this theory, applied as it commonly is, misleads us exceedingly. The impulse on one float may be accurately enough stated by it; but the authors have not been attentive to the motion of the water after it has made its impulse; and the impulse on the next float is stated the same as if the parallel filaments of water, which were not stopped by the preceding float, did impinge on the opposite part of the second, in the same manner, and with the same obliquity and energy, as if it were detached from the rest. But this does not in the least resemble the real process of nature.

Suppose the floats B, C, D, H (fig. 24.) of a wheel immersed in a stream whose surface moves in the direction AK, and that this surface meets the float B in E. The part BE alone is supposed to be impelled; whereas the water, checked by the float, heaps up on it to *c*.—Then drawing the horizontal line BF, the part CF of the next float is supposed to be all that is impelled by the parallel filaments of the stream; whereas the water bends round the lower edge of the float B by the surrounding pressure, and rises on the float *c* all the way to *f*. In like manner, the float D, instead of receiving an impulse on the very small portion DG, is impelled all the way from D to *g*, not much below the surface of the stream. The surfaces impelled at once, therefore, greatly exceed what this slovenly application of the theory supposes, and the whole impulse is much greater; but this is a fault in the application, and not in the theory. It will not be a very difficult thing to acquire a knowledge of the motion of the water which has passed the preceding float, which, though not accurate, will yet approximate considerably to the truth; and then

then the ordinary theory will furnish maxims of construction which will be very serviceable. This will be attempted in its proper place; and we shall endeavour, in our treatment of all the practical questions, to derive useful information from all that has been delivered on the present occasion.

RESOLUTION of IDEAS. See **LOGIC**, Part I. ch. 3.

RESOLUTION, in music. To *resolve* a discord or dissonance, says Rousseau, is to carry it according to rule into a consonance in the subsequent chord. There is for that purpose a procedure prescribed, both for the fundamental bass of the dissonant chord, and for the part by which the dissonance is formed.

There is no possible manner of resolving a dissonance which is not derived from an operation of cadence: it is then by the kind of cadence which we wish to form, that the motion of the fundamental bass is determined, (see **CADENCE**). With respect to the part by which the dissonance is formed, it ought neither to continue in its place, nor to move by disjointed gradations; but to rise or descend diatonically, according to the nature of the dissonance. Theorists say, that major dissonances ought to rise, and minor to descend; which is not however without exception, since in particular chords of harmony, a seventh, although major, ought not to rise, but to descend, unless in that chord which is, very incorrectly, called *the chord of the seventh redundant*. It is better then to say, that the seventh and all its derivative dissonances ought to descend; and that the sixth superadded, and all its derivative dissonances, should rise. This is a rule truly general, and without any exception. It is the same case with the rule of resolving dissonances. There are some dissonances which cannot be prepared; but there is by no means one which ought not to be resolved.

With respect to the sensible note, improperly called a *major dissonance*, if it ought to ascend, this is less on account of the rule for resolving dissonances, than on account of that which prescribes a diatonic procedure, and prefers the shortest road; and in reality, there are cases, as that of the interrupted cadence, in which this sensible note does not ascend.

In chords by supposition, one single chord often produces two dissonances; as the seventh and ninth, the ninth and fourth, &c. Then these two dissonances ought to have been prepared, and both must likewise be resolved; it is because regard should be paid to every thing which is discordant, not only in the fundamental, but even in the continued bass.

RESOLUTION, in chemistry, the reduction of a mixed body into its component parts or first principles, as far as can be done by a proper analysis.

RESOLUTION, in medicine, the disappearing of any tumor without coming to suppuration or forming an abscess.

RESOLVENTS, in medicine, such as are proper for dissipating tumors, without allowing them to come to suppuration.

RESONANCE, **RESOUNDING**, in music, &c. a sound returned by the air inclosed in the bodies of stringed instruments, such as lutes, &c. or even in the bodies of wind-instruments, as flutes, &c.

RESPIRATION, the act of respiring or breathing the air. See **ANATOMY**, n° 118. **BLOOD**, n° 29. **ME-**

DICINE, n° 104. **PHYSIOLOGY**, Sect. I. and **PUTREFACTION** *passim*.

RESPIRATION of Fishes. See **ICHTHYOLOGY**, n° 7, 8, 9.

RESPIRE, in law, signifies a delay, forbearance, or prolongation of time, granted to any one for the payment of a debt or the like. See **REPRIEVE**.

RESPONDENT, in the schools, one who maintains a thesis in any art or science; who is thus called from his being to answer all the objections proposed by the opponent.

RESPONDENTIA. See **BOTTOMRY**.

RESPONSE, an answer or reply. A word chiefly used in speaking of the answers made by the people to the priest, in the litany, the psalms, &c.

RESSORT, a French word, sometimes used by English authors to signify the jurisdiction of a court, and particularly one from which there is no appeal.—Thus it is said, that the house of lords judge *en dernier ressort*, or in the last ressort.

REST, the continuance of a body in the same place, or its continual application or contiguity to the same parts of the ambient or contiguous bodies; and therefore is opposed to motion. See the article **MOTION**.

REST, in poetry, is a short pause of the voice in reading, being the same with the cæsura, which, in Alexandrine verses, falls on the sixth syllable; but in verses of 10 or 11 syllables, on the fourth. See **POETRY**, Part III.

REST-HARROW, or **CAMMOCK**, the *Ononis Arvensis*. A decoction of this plant has been much recommended to horses labouring under a stoppage of urine. It is the pest of some corn-fields; but in its younger state, before the plant has acquired its thorns, it is a most acceptable food to sheep.

RESTAURATION, the act of re-establishing or setting a thing or person in its former good state.

RESTIO, in botany; a genus of the triandria order, belonging to the diccia class of plants. The male calyx is an ovate spike of membranaceous scales; the corolla is proper, hexapetalous, and persistent. The female calyx and corolla are as in the male; the germen is roundish, and sex-furcated; there are three erect and persistent styles; the capsule is roundish, with six plaits, and is rostrated and trilocular; the seeds are oblong and cylindrical.

RESTITUTION, in a moral and legal sense, is restoring a person to his right, or returning something unjustly taken or detained from him.

RESTITUTION of Medals, or *Restituted Medals*, is a term used by antiquaries for such medals as were struck by the emperors, to retrieve the memory of their predecessors.

Hence, in several medals, we find the letters **REST**. This practice was first begun by Claudius, by his striking afresh several medals of Augustus. Nero did the same; and Titus, after his father's example, struck restitutions of most of his predecessors. Gallienus struck a general restitution of all the preceding emperors on two medals; the one bearing an altar, the other an eagle, without the **REST**.

RESTIVE, or **RESTY**, in the manege, a stubborn, unruly, ill-broken horse, that stops, or runs back, instead of advancing forward.

RESTO-

Respira-
tion
||
Restive.

Restora-
tion
||
Resurrec-
tion.

RESTORATION, the same with *restauration*. See **RESTAURATION**.

In England, the return of king Charles II. in 1660, is, by way of eminence, called the *Restoration*; and the 29th of May is kept as an anniversary festival, in commemoration of that event, by which the regal and episcopal government was restored.

RESTORATIVE, in medicine, a remedy proper for restoring and retrieving the strength and vigour both of the body and animal spirits.

All under this class, says Quincy, are rather nutritional than medicinal; and are more administered to repair the wastes of the constitution, than to alter and rectify its disorders.

RESTRICTION, among logicians, is limiting a term, so as to make it signify less than it usually does.

RESTRINGENT, in medicine; the same with astringent. See **ASTRINGENTS**.

RESULT, what is gathered from a conference, inquiry, meditation, or the like; or the conclusion and effect thereof.

1
Definition.

RESURRECTION, in theology, is a rising again from the state of the dead; and is that event, the belief of which constitutes one of the principal articles in the Christian creed.

2
Plan of the
article.

In treating of this object of our faith, it has been usual to mention, first, the resurrection of our Blessed Lord, with the character of the witnesses, and the authenticity of the gospel history by which it has been proved; and from which, as a consequence, ours is inferred. But as most of the arguments for his resurrection are contained in the gospels, and as merely to repeat them would afford, we hope, but little information to most of our readers, we mean here to take a view of the several grounds on which the belief of a future existence is supposed to be founded; to collect together some of the sentiments of authors and nations concerning the place where departed spirits reside; concerning the nature of their present state; concerning the kinds of their future destination; that we may afterwards see how far their notions differ and agree with what we consider as the doctrines of Scripture.

3
The notion
of a future
state un-
known to
some ob-
scure tribes.

Of a future state, there have sometimes been found a few wandering and obscure tribes who seemed to entertain no notion at all; though it should be remarked, that some of these were likewise observed in so low a degree of savage barbarity as not to be acquainted with the use of the bow, the dart, or the sling, and as not knowing how to wield a club, or to throw a stone, as a weapon of defence*.

*See Ro-
bertson's
Hist. of
America.

4
Has been
almost uni-
versal.

Wherever the human mind has been cultivated, or properly speaking, begun to be cultivated, the opinion has likewise generally prevailed that human existence is not confined to the present scene; nay, so very general has this notion been found among mankind, that many are puzzled how to account for what they suppose to be almost next to its universality.

5
The origin
of this no-
tion deri-
ved by
some from
primeval
revelation.

To explain the phenomenon, some have imagined that it is a notion derived by tradition from primeval revelation. They suppose that the first parent of mankind, as a moral agent accountable for his conduct, was informed by his Maker of every thing which it was of importance for him to know; that he must have been acquainted with this doctrine of a future state in particular; and that he could hardly fail to communicate a

matter so interesting to his posterity. They suppose, too, that the history of the translation of Enoch must have made a great noise in the world, and that the remembrance of it must have been long retained and widely diffused; and they find in the book of Job plain intimations of a resurrection from the dead, which, from the manner in which they are introduced, they think that very ancient patriarch must have received through this channel.

It is not thought to be any objection to these suppo-
6
The usual
objection
to this
opinion is
no force.
sitions, that the Most High, when delivering his laws from the top of Mount Sinai, did not enforce them by the awful sanctions of a future state. The intelligent reader of the Scriptures knows that the sanctions of a future state belong to a different and more universal dispensation than was that of Moses; that the primeval revelation related to that dispensation; and that the Jewish law, with its temporal sanctions, was introduced only to preserve the knowledge and worship of the true God among a people too gross in their conceptions to have been properly influenced by the view of future rewards and punishments, of such a nature as eye hath not seen, nor ear heard, neither hath it entered into the heart of man to conceive. He sees at the same time, everywhere scattered through the Old Testament, plain indications of the Mosaic economy, being no more than preparatory to the bringing in of a better hope; and he thinks it evident, that such Jews as understood any thing of the nature of that better hope, must have been convinced, that, however the ceremonial rites of their religion might be sufficiently guarded by temporal sanctions, the *fundamental principles* of all religion and virtue are supported by rewards and punishments to be dispensed in a state beyond the grave. See **PROPHECY** and **THEOLOGY**.

7
Reasons in
support of
the opi-
nion.
That the progenitors of the human race must have been inspired by their Creator with the knowledge of their immortality, and of every thing necessary to their everlasting welfare, cannot, we should think, be questioned by any one who believes that the world had a beginning, and that it is under the government of goodness and justice. The progress from sense to science is so slow, that however capable we may suppose the earliest inhabitants of this earth to have been of making philosophical discoveries, we cannot believe that the Father of mercies left his helpless creature to discover for himself his future existence. Death, when first presented to him, must have been a ghastly object; and had he been left without any hope of redemption from it, he would undoubtedly have sunk into listless despondency.

But a prospect of immortality is so pleasing to the human mind, that if it was communicated to the first man, it would of course be cherished by his posterity; and there is no difficulty in conceiving how it might be handed down by tradition to very remote ages, among such of his descendants as were not scattered over the face of the earth in small and savage tribes.—In the course of its progress, it would frequently be new-modelled by the ever active imagination; and at last many absurd and fantastic circumstances would doubtless be combined with the original truth, that death puts not an end to human existence.

But though we are firmly convinced that the first principles of useful knowledge, and among them the doctrine of a future state, were communicated to man
by

by his Maker; and though this doctrine, in large and permanent societies, might certainly be conveyed more or less pure to late posterity through the channel of tradition—we are far from attributing so much to tradition as some writers are disposed to do, or thinking it the only source from which mankind could derive the belief of their existence beyond the grave. In small tribes of savages such a tradition could hardly be preserved; and yet some indistinct notions of a future state have been found among tribes who are said to have lost all traditional notions even of the being of a God.

Others, therefore, are inclined to believe that, independent of any traditions, mankind might be led by certain phenomena to form some conjectures of a future state. They observe, that although a few individuals perhaps may, yet it seldom happens that the whole individuals of any nation are exempted from dreaming: They observe, too, and this observation is founded on experience, that the images of the dead are from the remaining impressions of memory frequently summoned up in the fancy; and that it appears from all the languages of rude nations, who pay the greatest attention to their dreams, and who speak of seeing the dead in their visions, that these images (A) have always been taken by them for realities; nay, some of the learned, and the celebrated Baxter is of the number, are disposed to doubt whether these appearances be not something more than illusions of the brain: But whether they really be so or not, one thing is certain, that all nations in all countries, in the darkest ages and the rudest periods, are accustomed to dream; and whether sleeping or waking, in the stillness of the night, in the gloom of solitude, in the fondness of friendship, in the ravings of love, the delirium of fever, and the anguish of remorse, to see and converse with the shades of the departed; and Lucretius* has remarked, that even the inferior animals are not exempted from such illusions of a restless fancy.

For often sleeping racers pant and sweat,
Breathe short, as if they ran their second heat;
As if the barrier down with eager pace
They stretch'd, as when contending for the race.
And often hounds, when sleep hath clos'd their eyes,
They toss, and tumble, and attempt to rise;
They open often, often snuff the air,
As if they prest the footsteps of the deer;
And sometimes wak'd, pursue their fancy'd prey,
The fancy'd deer, that seem to run away,
Till quite awak'd, the follow'd shapes decay.
And foster curs, that lie and sleep at home,
Do often rouse, and walk about the room,
And bark, as if they saw some strangers come:
And birds will start, and seek the woods, by night,
Whene'er the fancy'd hawk appears in sight,
Whene'er they see his wing or hear him fight.

CREECH.

These powers of fancy extend wide over animal crea-

tion; and it is on this general principle that necromancers and dreamers have in all ages established their trade, that the stories of goblins have at all times so very easily procured belief, and that

The village matron, round the blazing hearth,
Suspends the infant audience with her tales,
Breathing astonishment! Of witching rhymes
And evil spirits; of the deathbed call
Of him who robb'd the widow and devour'd
The orphan's portion; of unquiet souls
Ris'n from the grave to ease the heavy guilt
Of deeds in life conceal'd; of shapes that walk
At dead of night, and clank their chains, and wave
The torch of hell around the murderer's head.

AIKENSIDE.

Mankind in general would willingly dispense with these troublesome visits of the dead. To prevent the return of the *zumbi* or the ghost, some nations of Africa use many superstitious rites*; and Kolben tells us, that the frighted Hottentots leave in the hut where a person has died all the utensils and furniture, lest the angry ghost, incensed at their avarice, should haunt them in their dreams, and infest them in the night. Divines and moralists have laboured to show that these are merely imaginary terrors: but God and nature seem to have determined that they shall produce the same effects upon certain minds as if they were real; and that while there is any sensibility in the heart, while there is any remembrance of the past, and any conjuring power in the fancy; the ignorant, the benighted, the timid, shall often meet with the goblins of darkness, the spectres of the tomb, the apparitions that hover round the grave, and the forms of the dead in the midnight dream. See SPECTRE.

From these phenomena, which have been so common in all countries and in all ages, what would mankind naturally infer? Would they not infer, that there is something in the nature of man that survives death, and that there is a future state of existence beyond the grave? Are not still many specimens of this reasoning preserved in the ancient poets? and is it not thus that Achilles† reasons after imagining that he saw the ghost of his friend Patroclus?

'Tis true, 'tis certain, man, though dead, retains
Part of himself; the immortal mind remains:
The form subsists without the body's aid,
Aerial semblance, and an empty shade.
This night my friend, so late in battle lost,
Stood at my side a pensive plaintive ghost;
Ev'n now familiar as in life he came,
Alas! how different, yet how like the same. POPE.

Lucretius*, a studious observer of nature, though no friend to the soul's immortality, acknowledges frankly that these phantoms often terrify the mind, haunt us in our sleep, and meet us while awake. He confesses, too, that by such appearances mankind have been led to

(A) These images were called by the Greeks *Εἰδωλα θανάσινα*; and among the Romans they had various names, as *umbræ, lemures, manes, larvæ*, and were sometimes called *occursacula noctium, bustorum formidamina, sepulchrorum terriculamenta, animæ errantes*, which are all comprehended under the *species mortuorum*.

Resurrec-
tion. to believe the future existence of the soul; but, aware
of the consequence,

— *Nè forte animas Acherunte reamur
Effugere, aut umbras inter vivos volitare,*

he endeavours to explain these curious phenomena on some of the odd and fantastic principles of the Epicureans. In doing this, however, he pretends not to deny that these images appear to be real; but candidly acknowledges that

— — — They strike and shake
The airy soul, as when we are awake,
With stroke so lively, that we think we view
The absent dead, and think the image true.

CREECH.

11
Folly of al-
lowing too
much to
tradition.

We here see how the belief of the soul's immortality came to be general among mankind. But for this information we are much more indebted to the poets, who have given us faithful transcripts of nature, than to the philosophers who have wished to entertain us with their own theories, or to those laborious men of erudition, who have dreaded as much to examine the source of an ancient report as the friends of Ulysses to approach the coast of Cimmerian darkness. With them tradition is the ultimate boundary of research: and as gorgons, chimeras, and hydras, have come down to us by tradition; so they, with great sagacity, suspect, that tradition must likewise be at the bottom of the soul's immortality, and occasion the visions and phantoms of the dead.

To tradition we have allowed all that it can justly claim; but we cannot allow it to be the only source of this opinion: and we have felt the highest indignation upon hearing men of learning and genius affirm, from a false zeal for the honour of revelation, that mankind, without this instruction, could never have acquired the art of building huts to screen them from the cold, or have learned the method of propagating their species! The reader must not here suppose that we allude to Polydore Virgil (a). We have in our eye persons now alive, with whom we have conversed on the subject, and who (terrified at the length to which some philosophers have carried the doctrine of instincts, and others the reasoning powers of the mind) have contended, with the utmost earnestness, that we know nothing—not even the functions of our animal nature—but by tradition or written revelation.

12
Opinions of
philosophers.

Having now seen the source of the opinion concerning the future existence of the soul, and pointed out the natural phenomena by which mankind were led to embrace it, we come next to review the arguments by which the philosophers attempted to confirm it.

Pythagoras believed, with the rest of his country, that annihilation was never the end, and that nonentity was never the beginning, of any thing that is. His general doctrine upon this subject was shortly expressed in very few words, *Omnia mutantur, nihil interit*. He afterwards learned from Egyptian priests that the soul migrates into new bodies; and being, it seems, a person of a most extraordinary and astonishing memory, he found there was some truth in the story: for after musing, he began to remember that he was Euphorbus, the son of Pantheus, that was slain by Menelaus in the Trojan war; and upon a jaunt to Peloponnesus, recollected the shield which he had worn at the time of the siege, in one of the temples of Juno at Argos! That none might question the truth of his assertion, his followers presently removed all doubts by the famous argument, the *ipse dixit* of Egyptian origin.

As Pythagoras taught that human souls are frequently thrust into brute shapes, and, as some imagined, by way of punishment; it occurred to Plato, that all bodies, even the human, are a sort of prisons; and that, in consequence of this confinement, the soul was subjected to the rage of desire, appetite, and passion, and to all the wretched miseries of a jail. To explain this mystery, he supposed that desires and appetites belong to a soul that is purely animal residing in the body. But he was perplexed with another difficulty; for as he thought highly of the goodness of Deity, he could not imagine how he should imprison us without a crime. He supposed, therefore, that prior to its union with the present body the soul had existed in one of ether, which it still retains; but that even in this ethereal body it had felt something of impure desire; and happening to indulge the vicious appetite, had contracted some stains of pollution, for which it was confined in its present body as a house of correction to do penance and improve its morals.

To prove this ideal pre-existence of the soul, Plato And m
availed himself of an opinion that was general in his of prov
time, that coincided with the doctrines of Pythagoras, it.
and that was partly founded on a sort of reasoning and observation. He thought that matter and intelligence are coeternal (see PLATONISM); that there are various orders of souls; that those of both the man and the brute are parts or emanations (c) of the *anima mundi*, or soul of the world; that all are ultimately parts or emanations of Deity itself; and that all their faculties are more or less restricted and confined, according to those organized systems with which they are connected. Know first (says one delivering his doctrines),

Know first, that heav'n and earth's compacted frame,
And flowing waters, and the starry flame,
And both the radiant lights, one common soul
Inspires, and feeds, and animates, the whole.

This

(a) This writer allots part of a chapter to show, "Quis primum instituerit artem meretriciam," as being, in his opinion, a traditinary practice. See Lib. iii. cap. 17. *De Rerum Inventoribus*.

(c) The Deity was conceived by the ancients sometimes as a solid, when inferior souls were called *σποπασματα* i. e. fragments or parts broken off from him; and sometimes as a fluid, when they were considered as *απορροιαί* or emanations: but from none of these hypotheses did they reason consequentially. Their *σποπασματα* were often after death reunited to the Deity; and their *απορροιαί* often remained separate and distinct for a long while, without flowing back as they ought to have done, and mingling with the great ocean of spirit.

Resurrec-
tion.

This active mind, infus'd through all the space,
Unites and mingles with the mighty mass:
Hence men and beasts the breath of life obtain,
And birds of air, and monsters of the main;
The ethereal vigour is in all the same,
And every soul is fill'd with equal flame;
As much as earthy limbs, and gross alloy
Of mortal members, subject to decay,
Blunt not the beams of heav'n and edge of day (D).

DRYDEN.

Besides this hypothesis, that in some measure was common to others, Plato had an argument peculiarly his own. Happening to peep into the region of metaphysics, he was somewhat surpris'd on observing the ideas which we derive from reflection and consciousness; and supposing that they could not have entered by the senses, he naturally, though not very justly, concluded, that we must have received them in some state of prior existence.

As, according to him, the soul was eternal, as well as the matter which compos'd the body, and as their union was only temporary and accidental, he might have been satisfied that the death of the soul was not to be the consequence of their separation. But, some how or other, satisfied he was not. He had recourse to a new argument. As the soul, he said, was an active principle, and a self-moving, it did not depend for its life on another; and therefore would always continue to exist, though the body were reduced to the general mass out of which it was formed. See METAPHYSICS, Part III. chap. iv.

Whether Plato had borrowed any of his doctrines from the eastern magi, we pretend not to say. We only observe a striking similarity, in some respects, between his and theirs. In Plato's philosophy, the sun, moon, and stars, were animated beings, and a sort of divinities that originally had sprung from the great fountain of heat and light, and our earthly bodies a sort of dungeons in which our miserable souls are benighted and debased by desires, appetites, and passions. In the magian philosophy, the Supreme Being was called *Oromasdes*; was the god of light, or was light itself, and represented by Mithras, a subordinate divinity, and the same with the sun. Another deity of very great power was Arimanes, the god of darkness, who presided over matter, and was the origin of all evil (see POLYTHEISM).

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Resurrec-
tion.

The ancient Gnostics, who derived their tenets from this source, believed, with Pythagoras and Plato, in a great number of subordinate genii; and said, that Demiurgus, the god of matter and the soul or spirit of this world, had contrived the bodies of men and brutes; and in the former particularly, as in so many prisons, had confined a number of celestial spirits, that by exposing them to the low desires of appetite and passion, he might seduce them from their allegiance to the God of light, and render them more submissive to himself. From these prisons the Supreme Being was continually making attempts to rescue them; and in the mean time was frequently sending divine messengers to enlighten and instruct them, and to render them capable of returning to the regions of light and happiness, to which they had belonged (E).

The Stoics attempted to simplify this system, which appears anciently to have pervaded Egypt and the east, and which would seem to be no more than variously modified by Orpheus, Pythagoras, Plato, and others of the more northerly and western nations. None of them allowed a creation out of nothing; and the shaping and modelling of matter into forms was variously explained, according as they happened to be most addicted to superstition, to morals, or to physics. Some ascribed these operations to ancient Time, Chaos, and Darkness, and explained the future changes in nature by the genealogies of these deities; some observing attraction and repulsion, or at least a sort of agreement and discordance among bodies, were inclined to ascribe them to Friendship and Hatred, or Love and Antipathy; some observing, that while one body rose another descended, made Levity and Gravity primary agents; and some taking notice that living bodies sprung from corruption, were disposed to confer the same powers on Moisture and Heat.

The physical hypotheses were what had most charms for the Stoics. From their system immaterial beings were openly excluded; all things were regulated by physical laws or inexorable fate; and all things originated in the *To 'Ev* or the *First One*, which was probably suggested by the *Monas* of Pythagoras. This *To 'Ev* appears to have been a *materia prima* devoid of all the qualities of body. In their language it was an *Αρχη* or *first principle*, not subject to change. When it was invested with the properties of body, it then became

R

a

(D) The general doctrine, as delivered here in these verses of Virgil, is the same with that not only of Pythagoras, but of the Stoics.

(E) Plato made the stars the native residence of inferior souls; and when these were thoroughly purified below, returned them home again: and therefore, says Virgil, alluding to his doctrine,

Some have taught
That bees have portions of ethereal thought,
Endu'd with particles of heav'nly fires;
For God the whole created mass inspires:
Thro' heav'n, and earth, and ocean's depth, he throws
His influence round, and kindles as he goes.
Hence flocks, and herds, and men, and beasts, and fowls,
With breath are quicken'd, and attract their souls:
Hence take the forms his prescience did ordain,
And into him at length resolve again.

No room is left for death, they mount the sky,
AND TO THEIR OWN CONGENIAL PLANETS-FLY.

Dryden.

Resurrec-
tion.18
Of Ari-
stotle.19
Of Critias
and others.20
Of the
Jews.

a *ἔλεμν* or an element; and then, so far as respected its qualities, especially its forms, it was subject to changes almost perpetual. The gods themselves and the souls of men were in this system only modifications of matter (r). Man was composed of their four elements, Fire, Air, Water, and Earth; and upon dissolution, every part returned to the element from which it had come, as the water of a vessel swimming in the sea unites with the ocean when the vessel is broken. This system, it is plain, cannot possibly admit of any separate consciousness of existence (c). The same may be said of the systems of Democritus and Epicurus, and all those who undertook to explain things upon physical principles (H). The chief merit of the physical systems appears to be this: Absurd as they were, it would seem from the whimsical and the almost childish reasoning of Lucretius, that they had a tendency to lead mankind from extravagant hypotheses to something that was similar to observation.

What Aristotle thought of the separate existence of the soul after death is not very certain. The soul he calls an *ἐνσώχης*; and if the reader can divine the meaning of the word, he perhaps can divine the meaning of the *Stagyrite*, and will then be a better diviner than we. At other times he says, that the soul is something divine; that it resembles the element of the stars; that it is something of a fiery nature; that it is the vicegerent of God in the body; and that the acuteness of the senses, the powers of the intellect, with the various kinds of appetites and passions, depend entirely on the qualities of the blood (i).

Another opinion of very old date was that of the late ingenious Mr Hunter. According to him, the living principle resides in the blood. This opinion, which is mentioned by Moses, was adopted by Critias and others of the ancients. Harvey likewise embraced it. But Mr Hunter, who always wished to be thought an original, inclines to stand at the head of the opinion, and supports it by experiments similar to those of the famed Taliacotius in mending noses. Should any of our readers wish to extract the soul's immortality from such an opinion, we must refer them to the many resources of ingenuity, sophistry, and logic.

Among the Jews, the belief of a future and separate existence for a long time was deemed no essential article of their creed. Some thought that the soul was a spark

in the moving of the heart; some imagined that it was the breath, and that upon the dissolution of the body it naturally vanished into soft air. The Sadducees denied the existence of either angel or spirit. Many believed the doctrine of ghosts, and were accustomed to invoke them at the grave. It is hence that we hear the prophets complaining that they were seeking from the living God unto dead men. Some imagined that there was a pre-existence of souls; and, in the case of a blind man, asked our Saviour, whether the man or his parents had sinned that he was born blind? Others inclined to a revolution of soul and body, and thought that our Saviour was either Elias or one of the old prophets returned; and a great many new-modelled their opinion of the soul's immortality according to certain passages in Scripture. The inspired mother of Samuel had said, "The Lord killeth and maketh alive: he bringeth down to the grave, and bringeth up." Isaiah had exclaimed, "Thy dead shall live; together with my dead body shall they arise: Awake, and sing, ye that dwell in the dust; for thy dew is as the dew of herbs, and the earth shall cast out the dead." Daniel had declared, that many of them that sleep in the dust of the earth, shall awake to everlasting life, and some to shame and everlasting contempt. In the vision of the valley of dry bones, Ezekiel had seen that "at the word of the Lord" the bones came together, bone to his bone, the sinews and the flesh came upon them, and the skin covered them above, and the breath came into the bodies, and they lived and stood upon their feet. And a passage of Job led them to suppose, that at some distant and future period a particular time, which was called the *last* or the *latter day*, was appointed by heaven for the general resurrection of all those who are sleeping in their graves. "I know (says Job) my Redeemer liveth, and that he shall stand at the latter day upon the earth; and though after my skin worms destroy this body, yet in my flesh shall I see God."

Whether these passages were fairly interpreted agreeably to their true and original meaning, it is not here our business to inquire. It is sufficient for us to observe, that from them many of the Jews inferred the reality of a general resurrection (κ). In this persuasion, Martha, speaking of her brother Lazarus, says to our Lord, "I know that he shall rise again in the resurrection at the last day." This resurrection appears to

(r) The *ἄρχη* of the Stoics appears to be the same with the *Li* of the Chinese.

(c) Yet without regarding the inconsistency, many of the Stoics believed, that the soul continued separate long after death; though all in general seemed to deny a future state of rewards and punishments.

(H) In his *Physical Cosmogony*, Plato differed but little from the Stoics; but he had another sort of cosmogony, in which all things appear to have sprung from, and to be almost wholly composed of, metaphysical entities, as ideas of forms, numbers, and mathematical figures. These kinds of notions were common both to him and Pythagoras; and were originally borrowed from Egypt, where calculation and geometry were half deified. See PLATONISM.

(i) The immortal Harvey has collected these different opinions of the *Stagyrite* in Exercit. 52. *De Generatione Animalium*.

(κ) At present some are for allowing only those of their own nation to share in the benefits of this resurrection; and some are not even for allowing them, except they be men of piety and virtue. To render this resurrection probable, the rabbins say, with some of the Mahometans, that there is a certain bone in the body which resists putrefaction, and serves as a seed for the next body*. What that bone is, is of no great moment, * See P as any bone, we believe, in the skeleton will answer the purpose equally well. With respect to the manner of this resurrection, the learned Hody has quoted several opinions of the Jews, and, among others, that of the Chal-

Resurrection. to have been a general opinion among the Pharisees; for although it was a notion of the sect of the Sadducees that there was no resurrection, neither angel nor spirit, yet the Pharisees, we are told, confessed both. And this assertion is plainly confirmed by St Paul himself when his countrymen accused him before Felix, "I confess unto thee (says this eminent apostle), that after the way which they call heresy so worship I the God of my fathers, believing all things which are written in the law and in the prophets, and having hope toward God, which they themselves also allow, that there shall be a resurrection of the dead, both of the just and unjust."

27 the Christians. This resurrection of the dead to judgment, though not perhaps in the same sense in which the old Pharisees conceived it, is now generally and almost universally (L) maintained by Christians (M). Yet the Christians differ considerably with respect to the nature of the human soul. Some imagine, that this spirit is naturally mortal, and that it is propagated along with the body from the loins of the parent. In support of this opinion, it has been observed that a great number of insects and plants transfer their lives to their posterity, and die soon after the act of propagation; that after this act the vital principle is in the most vigorous of plants and animals always found to be much exhausted; and that Tertullian a father of the church, in attempting some experiments of the kind, became subject to a momentary blindness, and felt a portion of his soul going out of him (N).

These imagine that immortality was only conditionally promised to man; that Adam forfeited this immortality by his disobedience; and that Christ has restored us to the hopes of it again by his sufferings and death: for as in Adam we have all died, so in Christ, they say, we shall all be made alive; and that now the sting is taken from death, and the victory over our souls from the grave.

Others have conceived the human soul as naturally immortal, and as setting death and the grave at defiance. Adam, they say, died only in a figure; and only from the consequences of this figure, which means

fin, has our Lord saved us. In this sense Adam died on the very day in which he had sinned; or he died literally in 1000 years, which with the Lord are as one day. To these arguments their opponents reply, What then is the victory over death and the grave? You must still have recourse to a new figure, and betake yourselves to the second death; though, after all, where is your grave? To this it is answered, that the soul of itself is naturally immortal, and that it depends not either for its existence or the exercise of its faculties upon the body; that the properties of matter, as figure, magnitude, and motion, can produce nothing that is like to perception, memory, and consciousness. This is true, rejoin their opponents; but besides these few properties of matter, which are only the objects of that philosophy which has lately and properly been termed *mechanical*, the chemical philosophy has discovered other properties of matter; has found that matter is of various kinds; that it very often does not act mechanically; that it acquires many new properties by combination; and that no man, till farther experiment and observation, should venture to assert how far the soul is or is not dependent on its present organised system. The others, proceeding on their hypothesis, maintain that the soul, as being immaterial, is not divisible; and though the body of a frog may live without the head for a whole day; though the body of a tortoise may live without the head for a whole month; though a human limb may for some minutes after amputation continue to perform a vital motion, independent of a brain, a stomach, or a heart; and though the parts of a plant, a polype, or a worm, may survive their separation and become living wholes*, yet the soul, they observe, is not to be compared with the vital principles of plants and animals, nor ought to be divided on reasons so slender as those of analogy. Even granting, they say, that the soul were not naturally immortal of itself; yet the justice of God, which is not remarkable for its equal distribution of rewards and punishments in the present world, is bound to make some amends in the next. And to this again their opponents answer, as to the equal distribution of justice in a future world, of that we are assured on much better

Resurrection.

* See Poly-
pus and Re-
production.

R 2

ter

See paraphrast of the Canticles, asserting that the prophet Solomon had said, "When the dead shall revive, it shall come to pass that the Mount of Olives shall be cleft, and all the dead of Israel shall come out from thence; and the just too that died in captivity shall come through the way of the caverns under the earth, and shall come forth out of the Mount of Olives." He has likewise quoted Saunderson's Voyage to the Holy Land, in which, we are told that many of the Jews, by their own account, are to rise up in the valley of Jehosaphet; and that in the *rowing* or *devolution* of the caverns, those at a distance must scrape their way thither with their nails.

(L) The sect of the Quakers explain it figuratively.

(M) The last quoted author* (*Resurrection of the same Body, asserted from the traditions of the Heathens, * Hody. the ancient Jews, and the primitive Church*) has endeavoured to show that this doctrine, in the same sense as we understand it, has been asserted by the ancient magi, and by the present heathen gaur of Persia, the relics of the ancient magi; by some of the ancient Arabians; by some of the banians of India; by the present inhabitants of the island of Ceylon, of Java, of Pegu, of Transiana; by some amongst the Chinese; by the Arderians in Guinea; and by the ancient Prussians. The proofs which he brings, it must be confessed, are not however always very satisfactory. It appears, even from his own account, that some of these had derived their notions from certain Christians, Mahometans, or Jews. But the reader may judge of the great accuracy of his ideas from his bringing old Pythagoras and the Stoics, and even Democritus and Epicurus, in support of the same or a similar opinion.

(N) In illo ipso voluptatis ultimæ æstu quo genitale virus expellitur, nonne aliquid de anima quoque sentimus exire, atque adeo marcellinus et devigescimus cum lucis detrimento.

Refurrec-
tion.

ter grounds than any of your's : our Lord has declared it in exprefs terms ; and whether the foul be immortal or not, we can easily believe what he faid is true, as we know him whom we have trusted.

These, with Plato, fuppofe, that the foul is here as in prifon ; though how or at what time it fhould firft have come into this dungeon they have not determined. They have only agreed, that upon its enlargement all its faculties are to receive an increafe of power ; and “ having already equipped it fo exquisitely with confcioufnefs, activity, and perception in and of-itself, and put it into fo complete a capacity for happinefs and mifery in a feparate ftate,” their hypothefis does not require them to admit the leaft occafion for a refurrection ; which accordingly is faid to have been an article of Baxter's creed (o).

A third opinion, which extends likewife to every fpecies of plant and animal, is, that all fouls were created at once with bodies of ether ; that thefe bodies, occupying only a very fmall fpace, were packed up in their firft progenitors, and there left to be afterwards evolved and clothed with matter of a groffer kind by acts of generation and confequent nutrition. For the proof of this theory we are referred to the fmall animals feen through the microfcope, and likewife to thofe which are fuppofed to efcape even microfopic obfervation ; but, above all, to the eggs of infefts, which, though fcarcely perceptible, yet contain in embryo a future caterpillar and all its coats, and within thefe a future butterfly with its legs and wings. Thefe philofophers can perhaps account for the general taint of original fin in fome other way than has hitherto been done. We have only to add, that on their fcheme the refurrection is not a matter that feems to be indifferent.

22
Place of
the dead
near to the
grave.

The next thing that falls to be confidered is the place of the dead. From a natural enough afociation of ideas, an opinion had very early prevailed, that the fpirit continued near to the body ; and the offerings therefore intended for the dead were by moft nations prefented at the grave ; and that on which the departed fpirit is fuppofed to reft is always placed near the grave in China.

23
In dark-
nefs.

From the dreams of the night and the natural tendency of the fancy to work and to fummon up fpectres when the world around us is involved in darknefs, it has alfo been imagined, that thefe fpirits delight in the night and fhadow of death (p), or have been prohibited from enjoying the exhilarating beams of day. And hence we are told,

That in the difmal regions of the dead
Th' infernal king once rais'd his horrid head ;
Leap'd from his throne, left Neptune's arm fhould lay
His dark dominions open to the day,
And pour in light.

The nations, therefore, who have fancied a general receptacle for the dead, have thus been induced to

place it in the weft (q), where the night begins and the day ends. That part of the world which, in the divifion of his father's dominions, fell to Pluto the infernal god, and where, according to Lactantius, Satan holds the empire of darknefs, the Friendly Iflanders have placed to the weftward of a certain ifland which they call *Tejee* ; fome tribes of American Indians, in a country beyond the weftern mountains ; and Homer, fomewhere to the weftward of Greece at the boundaries of the ocean,

Refurred
tion.

24
In the
weft.

Where in a lonely land and gloomy cells
The dusky nation of Cimmeria dwells ;
The fun ne'er views th' uncomfortable feats
When radiant he advances nor retreats.
Unhappy race ! whom endlefs night invades,
Clouds the dull air, and wraps them round in fhades.

Another opinion entertained by the Greeks and fome Under the other nations was, that the place of departed fpirits is earth. under the earth. This opinion is frequently mentioned in Homer, in Virgil, and alluded to by the Jewifh prophets. As for the prophets, we know the circumftance from which they borrowed it : it was borrowed from thofe fubterraneous vaults where their chiefs were buried, and which have been defcribed by modern travellers. In the fides of thefe caverns there is ranged a great number of cells ; and in thefe cells the mighty lay in a fort of ftate, with their weapons of war and their fwords at their head. To thefe kinds of Egyptian cemetaries Ezekiel alludes, when he fays, “ that they fhall not lie with the mighty that are fallen of the uncircumcised, who are gone down to hell with their weapons of war, and they have laid their fwords under their head.” And Ifaiah, when thus fpeaking of the prince of Babylon, “ Thou fhalt be brought down to hell, to the fides of the pit. Hell from beneath is moved for thee, to meet thee at thy coming ; it fireth up the dead for thee, even all the chief ones of the earth ; it hath raifed up from their thrones all the kings of the nations. All the kings of the nations, even all of them, lie in glory, every one in his own houfe.”

Many of the ancient fathers of the church asserted only, that the dead are now in *abditis receptaculis*, or in hidden certain hidden and concealed places.

Orpheus, Origen, and fome others of the fathers, with the ancient Caledonian bard Offian, and the learned Dodwell among the moderns, imagined that the foul, when it left the body, went into the air, and refided fomewhere between the furface of the earth and the moon.

Thofe who believed in a tranfmigration caufed the foul at death only to enter a new body, and kept the departed always with the living. This creed has been found in India, in Egypt, in Mexico, and in all thofe countries where picture-writing has been much ufed. In this fpecies of writing, the fame picture is on fancied analogy transferred by metaphor to fignify either

(o) *An Historical View of the Controversy concerning an Intermediate State, and the Separate Exiftence of the Soul.*
(p) Some Turkish ghofths are an exception, who ufe lamps or candles in their tombs, when their friends choofe to fupply them with thefe luxuries.

(q) The *weft* and *darknefs* are fynonymous in Homer. *Ω φίλοι, η γαρ τ' ἰδμεν ὅπη ζῶτες, οὐδ' ὅπη νῆς.* (*Odys.*) “ O my friends ! which is the weft, or which is the eaft, the place of darknefs, or that of the mornings, we cannot learn.”

ther a god or a man, a brute or a plant; and in those countries where it was practised, men had usually their names from animals, and were represented by their figure in writing (R). From this last stage of the process, a transmigration was easily supposed; and hence we hear of the gods of Egypt wandering about like so many vagrants in brute shapes, and of princes being translated into stars, because a star was their emblem in hieroglyphic, or stood for their name in figurative language. And, in like manner, we see, from the specimens of this character which is still preserved on celestial globes, how the heavens at first came to be filled with bears, scorpions, and dragons, and with a variety of other animals.

The opinions concerning the state of the dead are still more numerous than those concerning the place where they reside. Rude nations have generally thought that the future state is similar to the present; that plants, animals, and inanimate things there, have their shades; and that these contribute as much to the pleasures and conveniences of the dead as their realities do to the living; that husbands have their wives (S), lovers their mistresses, warriors their battles, huntsmen their sport; and that all their passions, amusements, and business, are the same as formerly. For this reason, that the dead may not appear unprovided in the next world, like the ancient Gauls, some tribes of India, America, and Africa, bury with them in the same grave their wives, their arms, their favourite animals, and their necessary utensils.

The ancient Egyptians, who believed in transmigration, supposed that the soul was after death obliged to animate every species of bird and quadruped, of reptile and insect, and was not to return to a human form till after a period of 3500 years. Others have confined their transmigrations to particular animals, as the soul of man to the human form, and the soul of the brute to the bodies of the species to which it belonged. Some have changed the brute into man, and man into the brute, that man might suffer injuries similar to what he had inflicted, and the brute retaliate what he had suffered. Others have confined the human soul in plants and in stones; and Bell of Antermony mentions an Indian who supposed that his ancestors might be in fishes.

The notions of Homer were probably those of many of his time. But these notions were dismal indeed. When his hero Ulysses visited the shades, many of the ghosts seemed to retain the mangled and ghastly appearance

which they had at death; and, what is worse, seemed to be all starving with hunger, innumerable multitudes, with loud shrieks, flocking to the streams of his slain victim as to a most sumptuous and delicious banquet.

Resurrection.

For scarcely had the purple torrent flow'd,
And all the caverns smok'd with streaming blood,
When, lo! appear'd along the dusky coast:
Thin airy shoals of visionary ghosts;
Fair pensive youths, and soft enamour'd maids,
And wither'd elders, pale and wrinkl'd shades.
Ghastly with wounds, the forms of warriors slain,
Stalk'd with majestic port, a martial train.
These, and a thousand more, swarm'd o'er the ground,
And all the dire assembly shriek'd around.
Ulysses saw, as ghost by ghost arose,
All wailing with unutterable woes.

Alone, apart, in discontented mood,
A gloomy shade, the fallen Ajax stood;
For ever sad, with proud disdain he pin'd,
And the lost arms for ever stung his mind.

Upon Ulysses saying to Achilles,
Alive, we hail'd thee with our guardian gods;
And, dead, thou rul'st a king in these abodes;

The shade reply'd:
Talk not of ruling in this dolorous gloom,
Nor think vain words (he cry'd) can ease my doom;
Rather I choose laboriously to bear
A weight of woes, and breathe the vital air,
A SLAVE TO SOME POOR HIND THAT TOILS FOR BREAD,
THAN LIVE A SCEPTER'D MONARCH OF THE DEAD.

In this gloomy region no one is rewarded for his virtue, nor is punished for his crimes, unless committed, like those of Sisyphus, Tantalus, and Ixion, against the gods. All indeed are classed into groups, from a certain analogy of age, sex, fate, and disposition; but all appear to be equally unhappy, having their whole heart and affections concentrated in a world to which they are fated never to return.

The Elysium of Homer is allotted only for the relations and descendants of the gods; and Menelaus goes to this country of perpetual spring (T), not as a person of superior merit, but because he had married the daughter of Jove.

Even long after a future state had become the scene of rewards and punishments, these for the most part were distributed, not according to moral, but physical distinctions. With the Greeks and Romans, the soul was condemned to many calamities for a number of years,

32
Becomes a
place of re-
wards and
punish-
ments.

(R) A military gentleman who resided at Penobscot during the late American war, assured us that the Indians, when desired to subscribe a written agreement, drew always the picture of the object or animal whose name they bore. But for fuller information on this subject, see Clavigero's Hist. of Mexico.

(S) The question which the Sadducees put to our Saviour about the wife of the seven brothers, is a proof that the Pharisees thought there was marriage and giving in marriage in the future state, and that it was somewhat similar to the present.

(T) Homer sends the ghost of Hercules to the shades, while Hercules himself is quaffing nectar with Hebe in the skies. One soul of the hero is therefore repining with the ghosts of mortals in the regions below, while the other is enjoying all the happiness of the gods above. (See ODYSSEY, B. II. near the end). Philosophers since have improved on this hint of the poet; and men have now got rational, animal, and vegetable souls, to which sometimes a fourth one is added, as properly belonging to matter in general. Homer insinuates, that Menelaus was to be translated to Elysium without tasting death. This Elysium is the habitation of men, and not of ghosts, and is described as being similar to the seat of the gods. Compare *Odysseus* iv. l. 563. and *Odysseus* vi. l. 43. in the Greek.

Refur-
rec-
tion.

33
These at
first dis-
tributed ac-
cording to
physical dis-
tinc-
tions;

* *Clavigero's*
Hist. of
Mexico,
vol. vi.
p. 136.

34
And after-
wards ac-
cording to
moral dis-
tinctions.

* Or para-
dise of fools.

35
Virgil's
purgatory.

years, if the body was not honoured with funeral rites. Among the Scandinavians, a natural death was attended with infamy, while a violent death, particularly in battle, gave a title to sit in the halls of Odin, and to quaff beer from the skulls of enemies. Among the Tlascalans, it was only the great that were permitted to animate birds and the nobler quadrupeds; the lower ranks were transformed into weasels, into poultry, beetles, and such mean animals. Among the Mexicans, those who were drowned, who died of a dropfy, tumors, or wounds, or such like diseases, went along with the children that had been sacrificed to the god of water, and in a cool and delightful place were allowed to indulge in delicious repasts and varieties of pleasures: those who died of other diseases, were sent to the north or centre of the earth, and were under the dominion of the gods of darkness. "The soldiers who died in battle, or in captivity among their enemies, and the women who died in labour, went to the house of the fun, who was considered as the prince of glory. In his mansions they led a life of endless delight. Every day the soldiers, on the first appearance of his rays, hailed his birth with rejoicings and with dances, and the music of instruments and voices. At his meridian they met with the women, and in like festivity accompanied him to his setting. After four years of this glorious life, they went to animate clouds, and birds of beautiful feathers and of sweet song; but always at liberty to rise again, if they pleased, to heaven, or descend to the earth, to warble their songs, and to suck flowers*."

These sentiments of a future state, conceived in a savage and a rude period, could not long prevail among an enlightened and civilized people. When the times of rapine and violence therefore began to cease; when societies regulated by certain laws began to be established; when martial prowess was less requisite, and the qualities of the heart had begun to give an importance to the character, the future state was also modelled on a different plan. In the *Æneid* of Virgil, an author of a highly cultivated mind, and of polished manners, it becomes a place of the most impartial and unerring justice; every one now receives a sentence suited to the actions of his past life, and a god is made to preside in judgment;

Who hears and judges each committed crime,
Inquires into the manner, place, and time.
The conscious wretch must all his acts reveal,
Loth to confess, unable to conceal,
From the first moment of his vital breath,
To the last hour of unrepenting death.

The spirits of the dead no longer mingle together as in the less enlightened period of Homer; the vicious are dismissed to a place of torments, the virtuous sent to regions of bliss: indifferent characters are confined to a limbus*; and those who are too virtuous for hell, but too much polluted with the stains of vice to enter heaven without preparation, are for some time detained in a purgatory.

For there are various penances enjoin'd,
And some are hung to bleach upon the wind;
Some plung'd in waters, others purg'd in fires,
Till all the dregs are drain'd, and rust expires;
Till nothing's left of their habitual stains,
But the pure ether of the soul remains.

When thus purified, they become fitted to receive the rewards of their past virtues, and now enter into those regions of happiness and joy.

With ether vested, and a purple sky,
The blissful seats of happy souls below,
Stars of their own, and their own suns they know;
Where patriots live, who, for their country's good,
In fighting fields were prodigal of blood.
Priests of unblemish'd lives here make abode,
And poets worthy their inspiring god;
And searching wits, of more mechanic parts,
Who grac'd their age with new-invented arts:
Those who to worth their bounty did extend;
And those who knew that bounty to commend.

These good men are engaged in various amusements, according to the taste and genius of each. Orpheus is still playing on his harp, and the warriors are still delighted with their chariots, their horses, and their arms. The place of torment is at some distance.

A gaping gulph, which to the centre lies,
And twice as deep as earth is distant from the skies;
From hence are heard the groans of ghosts, the pains
Of sounding lashes, and of dragging chains.
Here, those who brother's better claim disown,
Expel their parents, and usurp the throne;
Defraud their clients, and, to lucre sold,
Sit brooding on unprofitable gold.
Who dare not give, and even refuse to lend,
To their poor kindred, or a wanting friend.
Vast is the throng of these; nor less the train
Of lustful youths for foul adult'ry slain.
Hosts of deserters, who their honour sold,
And basely broke their faith for bribes of gold:
All these within the dungeon's depth remain,
Despairing pardon, and expecting pain.

The souls of babes, of unhappy lovers, and some others, seem to be placed in a paradise of fools residing in a quarter distinct from Elysian, Tartarus and Purgatory.

It is curious to observe, how much these ideas of a future state differ from the vague and simple conjectures of rude nations; and yet from their simple and rude conjectures, we can easily trace the successive changes in the writings of Homer, Plato, and Virgil; and may easily show, that those laws which different nations have prescribed for their dead, have always borne the strongest analogy to their state of improvement, their system of opinions, and their moral attainments. Some nations, as those of India, have fancied a number of heavens and hells, corresponding to some of their principal shades in virtue and vice; and have filled each of these places respectively with all the scenes of happiness and misery, which friendship and hatred, admiration, contempt, or rancour, could suggest. But having already observed the progress of the human mind in forming the grand and leading ideas of a future state, we mean not to descend to the modifications which may have occurred to particular nations, sects, or individuals.

The belief of Christians respecting futurity demands our attention, as being founded on a different principle, namely, on express revelations from heaven. From many express declarations in Scripture, all Christians seem to be agreed, that there is a heaven appointed for the

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the good and a hell for the wicked. In this heaven the saints dwell in the presence of God and the uninterrupted splendors of day. Those who have been wise shine as the firmament, and those who have converted many to righteousness as the stars. Their bodies are glorious, immortal, incorruptible, not subject to disease, to pain, or to death. Their minds are strangers to sorrow, to crying, to disappointment; all their desires are presently satisfied; while they are calling, they are answered; while they are speaking, they are heard. Their mental faculties are also enlarged; they no more see things obscurely, and as through a cloud, but continually beholding new wonders and beauties in creation, are constantly exclaiming, "Holy, holy, holy! is the Lord of Hosts, worthy is he to receive glory, and honour, and thanksgiving; and to him be ascribed wisdom, and power, and might; for great and marvellous are his works, and the whole universe is filled with his glory."

Their notions of hell differ considerably. Some understanding the Scriptures literally, have plunged the wicked into an abyss without any bottom; have made this gulph darker than night; have filled it with rancorous and malignant spirits, that are worse than furies; and have described it as full of sulphur, burning for ever. This frightful gulph has by some been placed in the bowels of the earth; by some in the sun; by some in the moon; and by some in a comet: but as the Scriptures have determined nothing on the subject, all such conjectures are idle and groundless.

Others imagine, that the fire and sulphur are here to be taken in a figurative sense. These suppose the torments of hell to be troubles of mind and remorse of conscience; and support their opinion by observing, that matter cannot act upon spirit; forgetting, perhaps, that at the resurrection the spirit is to be clothed with a body, and, at any rate, that it is not for man vainly to prescribe bounds to Omnipotence.

What seems to have tortured the genius of divines much more than heaven or hell, is a middle state. On this subject there being little revealed in Scripture, many have thought it incumbent upon them to supply the defect; which they seem to have done in different ways. From the Scriptures speaking frequently of the dead as sleeping in their graves, those who imagine that the powers of the mind are dependent on the body, suppose that they sleep till the resurrection, when they are to be awakened by the trump of God, reunited to their bodies, have their faculties restored, and their sentence awarded.

This opinion they support by what St Peter says in the Acts, that David is not ascended into heaven; and that this patriarch could not possibly be speaking of himself when he said, "Thou wilt not leave my soul in hell, i. e. the place of the dead." They observe, too, that the victory of Christ over death and the grave seems to imply, that our souls are subject to their power; that accordingly the Scripture speaks frequently of the soul's drawing near to, of its being redeemed from, and of its descending into, the grave; that the Psalmist, however, declares plainly, that when the breath of man goeth forth, he returneth to his earth; and that very day his thoughts perish. And should any one choose to consult Ecclesiastes, he will find, that the living know that they shall die, but that the dead know not any thing: that their love, and their hatred, and their envy, are perished; and that there is no work, nor device, nor

wisdom, nor knowledge, in the grave, whether they Resurrection.

Those who believe that the soul is not for the exercise of its faculties dependent on the body, are upon its separation at death obliged to dispose of it some other way. In establishing their theory, they usually begin with attempting to prove, from Scripture or tradition, both its active and separate existence; but with proofs from tradition we intend not to meddle. Their arguments from Scripture being of more value, deserve our serious consideration; and are nearly as follow.

Abraham, they say, Isaac, and Jacob, are still living, because Jehovah is their God; and he, it is allowed, is not the God of the dead, but of the living. But their opponents reply, That this is the argument which our Saviour brought from the writings of Moses to prove a future resurrection of the dead; and that any person who looks into the context, will see it was not meant of a middle state. From the dead living unto God, our Saviour infers nothing more than that they shall live at the resurrection; and that these gentlemen would do well in future to make a distinction between simply living and living unto God: For though Abraham, Isaac, and Jacob, be living unto God, our Saviour has assured us that Abraham is dead, and the prophets dead.

A second argument is that glimpse which St Paul had of paradise about 14 years before he had written his Second Epistle to the Corinthians. To this argument their opponents reply, That as St Paul could not tell whether, on that occasion, he was out of the body or in the body, it is more than probable that the whole was a vision; and, at any rate, it is no proof of a separate existence.

A third argument is, St Paul's wishing to be absent from the body, and present with the Lord. But, say their opponents, St Paul desired not to be unclothed; but to be clothed upon: and as some of those who maintain a separate existence, bring Scripture to prove that the body continues united to Christ till the resurrection; in that case, St Paul, if he wished to be present with the Lord, should have rather remained with his body than left it.

A fourth argument is, the appearance of Moses and Elias upon the mount of transfiguration. To which their opponents reply, that these saints appeared in their bodies; that Elias was never divested of his body; and that the account which we have of the burial of Moses, has led some of the ablest critics and soundest divines to conclude, that he was likewise translated to heaven without tasting death. At any rate, say they, he might have been raised from the dead for the very purpose of being present at the transfiguration, as the bodies of other saints certainly were, to bear testimony to our Lord's resurrection and victory over the grave.

A fifth argument is, what our Saviour said to the thief, "Verily I say unto thee, to-day thou shalt be with me in paradise." The objection usually made here is, that the expression is evidently ambiguous, and that the sense depends entirely on the punctuation: for if the point be placed after *to-day*, the meaning will be "Verily, even now, I tell thee, thou shalt be with me in paradise." But the import of paradise in this place, say the opponents, is likewise doubtful. We learn from St Peter's explanation of the 16th Psalm, that our Saviour's

44
According
to others,
a state of
conscious
existence.

Shorter
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Refurrec-
tion.

viour's soul was not to be left in hell; and we know that on the day of his crucifixion he went not to heaven: for after he had risen from the place of the dead, he forbade one of the women to touch him, as he had not yet ascended to the Father. Hell, therefore, and paradise, continue they, seem to be in this passage the very same thing, the place of the dead; and our Saviour's intention, they add, was not to go to heaven at that time, but to show his victory over death and the grave, to whose power all mankind had become subject by the disobedience of their first parents.

45
The soul is
by some
supposed to
reside in
the air till
the resur-
rection.

Without pretending to enter into the merits of this dispute, the ingenious Burnet, in his Theory of the Earth, endeavours to prove, upon the authority of the ancient fathers, that paradise lies between the earth and the moon; and the learned Dodwell, on the same authority, has made it the common receptacle of souls till the resurrection; but has not told us whether or not they are to be accountable for the actions of this separate existence at the latter day, or are only to be judged according to the deeds that were done in their bodies.

46
The church
of Rome
supposes a
purgatory.

This notion of a common receptacle has displeased many. The state of purgation, obscurely hinted in the doctrines of Pythagoras, and openly avowed by Plato and Virgil, has been adopted by the Romish divines, who support their opinion on certain obscure passages of scripture, which are always of a yielding and a waxen nature, may easily be twisted to any hypothesis, and like general lovers espouse rather from interest than merit.

47
Others sup-
pose that
the soul af-
ter death
enters a
state of re-
wards and
punish-
ments in a
certain
degree.

It has displeased others, because they are anxious that the righteous should have a fore-taste of their joys, and the wicked of their torments, immediately after death, which they infer to be certainly the case from the parable of the rich man and Lazarus (v). But to this it is objected, that the rich man is supposed to be in hell, the place of torments, and that this punishment ought not to take place on their own hypothesis till after the sentence at the resurrection.

Another argument used for the intermediate state is the vision of St John in the Apocalypse. In this vision the Evangelist saw under the altar the souls of those that were slain for the word of God and for the testimony which they held. Their opponents doubt whether these visible souls were immaterial, as St John heard them cry with a loud voice, and saw white robes given unto every one of them. If they had bodies, that circumstance might chance to prove a resurrection immediately after death, and so supersede the general resurrection at the last day.

While such conclusions as are here drawn from the parable and vision, say the opposers of an intermediate conscious existence, imply that the dead are already raised, and are now receiving the respective rewards of their virtues and their crimes; those who maintain an intermediate separate existence, who speak of the body as a prison, and of the soul as receiving an increase of power when freed from the body, are certainly not more than consistent with themselves, when they think that this soul would derive an advantage from its after union with either a new system of matter or the old one, however much altered. Baxter, they say, who saw the in-

consistency, was disposed to reason somewhat like *Æneas*.

O, Father! can it be that souls sublime
Return to visit our terrestrial clime?
Or that the gen'rous mind, releas'd at death,
Should covet lazy limbs and mortal breath?

In no one instance, they continue, have Christians perhaps more apparently than in this argument wrested the scriptures to their own hurt: by thus rashly attempting to accommodate the sacred doctrines of religion to a preconceived philosophical hypothesis, they have laid themselves open to the ridicule of deists, and have been obliged, for the sake of consistency, either to deny or to speak slightly of the resurrection; which is certainly the surest foundation of their hope, seeing St Paul hath assured us, that if there be no resurrection of the dead, then they which are fallen asleep in Christ are perished, and those who survive may eat and drink, and act as they please, for to-morrow they die; and die, too, never to live again.

Though this reproof may be rather severe, we are sorry to observe that there seems to have been sometimes too much reason for it. A certain divine†, whose piety was eminent, and whose memory we respect, having written "An Essay toward the proof of a separate State of Souls between Death and the Resurrection, and the Commencement of the Rewards of Virtue and Vice immediately after death," has taken this motto, "Because sentence against an evil work is not executed speedily, therefore the heart of the sons of men is fully set in them to do evil." "The doctrine, he says, of the resurrection of the body and the consequent states of heaven and of hell, is a guard and motive of divine force, but it is renounced by the enemies of our holy Christianity; and should we give up the recompenses of separate souls, while the deist denies the resurrection of the body, I fear, between both we should sadly enfeeble and expose the cause of virtue, and leave it too naked and defenceless."

This author, who wishes much that the punishment of crimes should follow immediately after death, is of opinion, that if heaven intended to check vice and impiety in the world, it has acted unwisely, if it really has deferred the punishment of the wicked to so late a period as the resurrection. "For such, he observes, is the weakness and folly of our natures, that men will not be so much influenced and alarmed by distant prospects, nor so solicitous to prepare for an event which they suppose to be so very far off, as they would for the same event if it commences as soon as ever this mortal life expires. The vicious man will indulge his sensualities, and lie down to sleep in death with this comfort, I shall take my rest here for 100 or 1000 years, and perhaps in all that space my offences may be forgotten; or let the worst come that can come, I shall have a long sweet nap before my sorrows begin: and thus the force of divine terrors is greatly enervated by this delay of punishment."

Thus far our author, who thinks that his hypothesis, if not true, is at least expedient, and that from motives of expediency it ought to be inculcated as a doctrine

(v) Whitby shows that this parable was conformable to the notions of the Jews at that time; and even the Mahometans, who believe in the resurrection of the dead, suppose likewise a state of rewards and punishments in the grave.

trine of Scripture; but how far his reasons can be here justified we mean not to determine; we shall leave that to be settled by others, reminding them only that the distance of future rewards and punishments is not greater on the supposition of the sleep of the soul than on the contrary hypothesis. Every man who has but dipped into the science of metaphysics knows, and no man ever knew better than he who is believed to have been the author of the work before us, that time unperceived passes away as in an instant; and that if the soul be in a state void of consciousness between death and the resurrection, the man who has lain in his grave 1000 years will appear to himself to have died in one moment and been raised in the next. We would likewise recommend to those who may henceforth be inclined to inculcate any thing as a doctrine of Scripture merely on account of its supposed expediency, always to remember that God is above, that they are below, that he is omniscient, that they are of yesterday and know little, that their words therefore should be wary and few, and that they should always speak with respect of whatever concerns the Sovereign of the universe, or relates to his government either in the natural or moral world. For wilt thou, says the Highest, disannul my judgement? Wilt thou condemn me that thou mayest be righteous? shall he that contendeth with the Almighty instruct him? He that reproveth God let him answer it.

If, in stating these opposite opinions, we may seem to have favoured what has been called the sleep of the soul, it is not from any conviction of its truth, for there are particular texts of Scripture which appear to us to militate against it. We are satisfied, however, that it is a very harmless opinion, neither injurious to the rest of the articles of the Christian faith nor to virtuous practice; and that those who have poured forth torrents of obloquy upon such as may have held it in simplicity and godly sincerity, have either mistaken the doctrine which they condemned, or been possessed by a spirit less mild than that of the gospel (x).

Whatever be the fate of the middle state, the resurrection stands on a different basis. It is repeatedly asserted in Scripture; and those grounds on which we believe it are authenticated facts, which the affectation, the ingenuity, and the hatred of sceptics, have numberless times attempted in vain to disprove. These facts we are now to consider, referring our readers for the character of the witnesses, the authenticity of the gospel-history, and the possibility of miracles, to the parts of this work where these subjects are treated (See MIRACLE, METAPHYSICS, Part I. Chap. vii. and RELIGION); or, should more particular information be required, to the writings of Ditton, Sherlock, and West.

Our Lord, after proving his divine mission by the miracles which he wrought, and by the completion of ancient predictions in which he was described, declared

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that the doctrine of a resurrection was one of those truths which he came to announce. To show that such an event was possible, he restored to life the daughter of Jairus, a ruler of the synagogue, a young man of Nain, who was carried out on his bier to be buried, and his friend Lazarus, whose body at the time was thought to have become the prey of corruption. Though the two first of these miracles were wrought in the presence of a number of witnesses, yet the last, owing to particular circumstances, produced a much greater noise among the Jews. It was performed on a person seemingly of some note, in the village of Bethany, not far from Jerusalem, and in the presence of a great many persons who from the metropolis had come to condole with Mary and Martha. No doubts were entertained of the reality of Lazarus's death. Our Lord was at a distance when he expired, and his body had already been lying for some days in the grave. When he came forth at the voice of our Lord, all were astonished. Those from Jerusalem, on returning home, are impatient to relate what they had seen; those who heard of so memorable an event cannot conceal it; the report reaches the ears of the Pharisees and chief priests. They are soon made acquainted with every circumstance; and dreading the issue, they think it necessary to call a council upon the occasion, and concert the measures that ought to be pursued in a matter which was likely to be attended with so many and important consequences. In this council, it seemed to be agreed that our Lord had performed, and was still continuing to perform, many miracles: That this last miracle, as being of an extraordinary kind, would make many converts; and that if measures were not speedily taken to prevent these uncommon displays of his power, all would believe on him: the jealousy of the Romans would be excited, the rulers deposed, and the nation of the Jews deprived of its few remaining privileges. Yet, notwithstanding these private concessions made in the council, the members who dreaded to let their sentiments be known to the people, affect in public to treat our Saviour as an impostor. But he who already had demonstrated the absurdity of their opinion, who supposed that his miracles were wrought by Beelzebub prince of the devils, is again ready to confute the ridiculous assertion of those who pretended to say that they were a deception. His friend Lazarus was still living at the distance of only a few miles, and many of the Jews who had gone to see him were ready to attest the truth of the report. If the rulers, apprehending the consequences of the truth, be afraid to know it, and if they are unwilling to go to Bethany, or to send for Lazarus and those who were present at his resurrection, our Lord gives them a fair opportunity of detecting his fraud, if there was any such to be found in him. To preserve their power, and remove the jealous suspicion of the Romans, it had been already determined in council to put him to death; and

Resurrection.

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The possibility of it shown by our Saviour's raising several persons from the dead;

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(x) Perhaps no man has been more culpable in this respect than the celebrated Warburton, who seems at first to have himself denied an intermediate state of conscious existence. He afterwards imagined that such a state is supposed, though not expressly asserted, in Scripture; and at last he maintained it with all the zeal and warmth of a proselyte. To prove the sincerity of his conversion, he treated his adversaries with scurrilous nicknames, banter, and abuse; a species of reasoning which seldom succeeds in recommending a bad cause, and which never confers credit on one that is good.

Refurrec-
tion.

our Lord foretels that the third day after his death he shall rise from the grave. Here no place was reserved for deception. The sect of the Pharisees and the chief priests are openly warned and put upon their guard; and, very fortunately for the cause of Christianity, this singular prediction was not heard with scorn, or indeed, if with scorn, it was only affected. We know from the sentiments expressed in the council, that our Lord was secretly dreaded by the rulers; that his miracles were far from being discredited; and that his predictions, in their private opinion, were not to be slighted. The means accordingly which they employed to prevent, even in the very appearance, the completion of his prophecy, were admirably calculated to remove the scruples of the most wary and sceptical inquirers, if their object was only to search after truth. At the next festival of the pass-over, when the scheme of Caiaphas was put in execution, and when it was deemed expedient by the council that he should die, to save the nation from the jealousy of the Romans; as a proof of their steady loyalty to Rome he was apprehended, was tried as an enemy to her government, was at last condemned upon false evidence, and suspended on a cross until they were fully satisfied of his death. Even after his death, the spear of a soldier was thrust into his side; and the water that gushed out with the blood is a proof to those who are acquainted with the structure and economy of living bodies, that he must have been some time dead.

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And above
all by His
own resur-
rection.

After he was taken down from the cross, a seal was put on the door of the sepulchre in which he was laid, as the best check against secret fraud; and a guard of soldiers was stationed around it, as the best security against open violence. In spite, however, of all these precautions, the prediction was accomplished; the angel of God, descending from heaven with a countenance like lightning, and with raiment white as snow; the watch shake, and become as dead men; the earth quakes; the stone is rolled from the mouth of the sepulchre; the angel sits on it, and our Lord comes forth.

It was in vain for the Jews to allege that his disciples came in the night, and stole him away, while the watch were asleep. One must smile at these puerile assertions. How came the disciples to know that the watch were asleep; or what excuse had the watch for sleeping, and incurring a punishment which they knew to be capital in the Roman law? and how came they, in the name of wonder, to be brought as an evidence for those transactions that happened at the time when they were asleep?

Whatever credit may be given by modern infidels to this ill-framed story, it is past dispute that it had none among the Jewish rulers at the time that it was current. Not long after our Saviour's resurrection, the apostles were called before the council, and threatened with death for teaching in the name of Jesus. Their boldness upon that occasion was so provoking to the rulers, that the threat would have been instantly put in execution, had not Gamaliel, a doctor of the law of high reputation, put them in mind of other impostors who had perished in their attempts to mislead the people; and concluded a very sensible speech with these remarkable words: "And now, I say unto you, refrain from these men, and let them alone; for if this counsel, or this work, be of men, it will come to nought; but if it be

of God, ye cannot overthrow it, lest haply ye be found even to fight against God." This advice the council followed. But is it possible that Gamaliel could have given it, or the council paid the least regard to it, had the story of the disciples stealing the body been then credited? Surely some among them would have observed, that a work or counsel, founded on imposture and fraud, could not be *supposed to be of God*, and they would unquestionably have slain the apostles.

The story of stealing the body is indeed one of the most senseless fictions that ever was invented in support of a bad cause. Our Lord was on earth 40 days after he arose. He appeared frequently to his disciples. He ate and drank in their presence; and when some of them doubted, he bade them handle him and see that he was not a spectre, showed the mark of the spear in his side, and the prints of the nails in his feet and hands. Besides thus appearing to his disciples, he was seen by more than 500 brethren at one time; all of whom, as well as his disciples, must necessarily have known him previous to his suffering, and could therefore attest that he was the person who was once dead, but was then alive. Yet for strangers in general, who had not seen him previous to his death, and could not therefore identify his person after he arose, our Lord reserved many other proofs that were equally convincing. Before his ascension, he bade his disciples wait till they received power, by the Holy Ghost descending upon them: That then they should be witnesses with him, both in Jerusalem, and in all Judea, and in Samaria, and unto the uttermost ends of the earth; in order that the people of all these nations, observing the miracles wrought in his name, might themselves become ocular witnesses that those who preached his resurrection were warranted to do so by his authority; and that this authority, on which so numerous miracles attended, must be divine.

We intend not here to examine the minute objections and cavils that have been advanced respecting the truth of this important fact. The kinds, however, we shall mention in general. Some have doubted of our Lord's resurrection, as being an event which is not confirmed by general experience, because they imagine that what happens once should happen again, and even repeatedly, in order to be true. Some, taking their own to be preferable schemes, have objected to the way in which it happened, and to the manner in which it is narrated. Some have imagined, that possibly the gospel history may be false; that possibly the disciples were very ignorant, and might be deceived; that possibly, too, they were deep politicians, and a set of impostors; and that possibly the writings which detected their falsehoods may have been destroyed. It is difficult to reason, and worse to convince, against this evidence of possibilities: but we flatter ourselves, that to the candid reader it will appear sufficiently overturned in our article MIRACLE; where it is shown that neither clowns nor politicians could have acted the part that was acted by the apostles, had not the resurrection been an undoubted fact.

Some of the objectors to it have also maintained, that possibly there is nothing material without us, that there is nothing mental within us, and that possibly the whole world is ideas. This mode of arguing we pretend not to explain; it is thought by some to proceed entirely from a perverseness of mind or disposition, while in books

of medicine it is always considered as a symptom of disease, and the patient recommended to be treated in the hospital, and not in the academy.

By his raising others, and particularly by rising himself, from the dead, our Saviour demonstrated that a resurrection from the dead is possible. And on that authority, which by his miracles he proved to be divine, he declared to his followers, that there is to be a general resurrection both of the just and of the unjust, instructing his disciples to propagate this doctrine through all nations; St Paul confessing, that if there be no resurrection of the dead, preaching is vain, and our faith is vain.

As to the order of succession in which the dead are to be raised, the Scriptures are almost silent. St Paul says, that every man is to rise in his own order, and that the dead in Christ are to rise first: and St John observed in his vision, that the souls of them which were beheaded for the witness of Jesus, and for the word of God, and which had not worshipped the beast, neither his image, neither had received his mark upon their foreheads, or in their hands, lived and reigned with Christ a thousand years; but the rest of the dead lived not again until the thousand years (v) were finished.

A question that has much oftener agitated the minds of men is, with what sort of bodies are the dead to be raised? St Paul has answered, with incorruptible and immortal bodies (z). And to silence the disputatious caviller of his day, he illustrated his doctrine by the growth of grain. "Thou fool (said he), that which thou sowest, thou sowest not that body that shall be, but bare grain, it may chance of wheat or of some other grain." To us it appears very surprising, that any one who reads this passage with the slightest attention, should perplex himself, or disturb the church with idle attempts to prove the identity of the bodies with which we shall die and rise again at the last day. The apostle expressly affirms, that "flesh and blood cannot inherit the kingdom of God; that we shall all be changed, in a moment, in the twinkling of an eye, at the last trump; that there are celestial bodies and bodies terrestrial; and that the glory of the celestial is one, and the glory of the terrestrial another."

That this implies a total change of qualities, will admit of no dispute; but still it has been considered as an article of the Christian faith, that we are to rise with the same bodies in respect of substance. What is meant by the identity of substance, with qualities wholly different, it is not very easy to conceive. Perhaps the meaning may be, that our incorruptible bodies shall consist of the same material particles with our mortal bodies, though these particles will be differently arranged to produce the different qualities. But as the particles of our present bodies are constantly changing, and as different particles compose the body at different times, a question has been put, With what set of particles shall we rise? Here a singular variety of opinions have been held. Some * contend, that we shall rise with the original

stamina of our bodies derived from our parents; some are for rising with that set of particles which they had at birth; some with the set which they are to have at death; and some with the particles which remain after maceration in water†; though, God knows, that if this maceration be continued long, these may arise with few or no particles at all. Another query has given much alarm. What if any of these particles should enter a vegetable, compose its fruit, and be eaten by a man, woman, or a child? Will not a dispute, similar to that apprehended by the Sadducees about the wife of the seven brothers, necessarily follow, whose particles are they to be at the resurrection? Against this confusion, they trust that the goodness and wisdom of heaven will take all the proper and necessary measures; and they even venture to point out a way in which that may be done. A foot deep of earth, they observe, in two or three of the counties of England, supposing each person to weigh on an average about seven stones and a few pounds, would amply supply with material bodies 600,000,000 of souls for no less a space than 20,000 years‡; and therefore there seems to be no necessity for the vamping up of their old materials to lodge and accommodate new souls.

But, unluckily here, the question is not about the possibility of keeping the particles of different bodies separate and distinct. The question is rather, What have the Scriptures determined on the subject? Now the Scriptures say, that the spirit returns unto God who gave it. And should it be asked, in what place does he reserve it till the resurrection? the Scriptures reply, in the place of the dead; because the soul descends into the pit, is redeemed from the grave; and the sting of death, the last enemy that is to be destroyed, shall be taken away when the trumpet of God shall sound: at which time the dead that sleep in their graves shall awake, shall hear the voice, and shall come forth. There is not here so much as a word concerning the body; and therefore it was asked with what bodies are the dead to be raised? To which it was answered, the vile body is to be changed. The body which is, is not the body which shall be; for the incorruptible must put on incorruption, and that which is mortal, put on immortality.

This curious discovery of the sentiments of Scripture we owe to a lay-man, the celebrated Locke; who, in one of his controversies with the bishop of Worcester, came to understand what he knew not before, namely, that nowhere have the Scriptures spoken of the resurrection of the same body in the sense in which it is usually conceived. The resurrection of the same person is indeed promised; and how that promise may be fulfilled, notwithstanding the constant change of the particles of the body, has been shown in another place. See METAPHYSICS, Part III. Chap. iii.

The advocates, therefore, for the resurrection of the mortal body, have again been obliged to betake themselves to the shifts of reasoning. It is proper, say they,

(v) These thousand years formed the happy millenium so often mentioned in the ancient fathers; and the learned Burnet, in his Theory of the Earth, has endeavoured to prove, that a similar notion prevailed among the Jews. See MILLENIUM.

(z) Our Saviour rose with the same body, both as to substance and qualities; because it was necessary that his person should be known and identified after his resurrection.

Resurrec-
tion
||
Retarda-
tion.

that the same bodies which have been accomplices in our vices and virtues, should also share in our rewards and punishments. Now, granting they will, shall one set of particles be bound for the crimes, or be entitled to receive the rewards, of the animal system, from its first commencement to its dissolution? or shall every particle rise up successively, and receive its dividend of rewards and punishments for the vices and virtues that belonged to the system during the time that they were in union with the sentient principle? and is the hand that fell in defending a father to be (as is supposed in some of the eastern countries) rewarded in heaven; while the other that struck him when the son became vicious, is dismissed into torments?

Finding this hypothesis supported by neither Scripture nor reason, they next appeal to the ancient fathers. And they, it is confessed, are for the resurrection of the very same flesh. But this notion is directly contrary to the Scriptures, which have said, that flesh and blood are not to inherit the kingdom of God.

55
State after
the resur-
rection.

But whatever be the bodies with which the dead are to be raised at the general resurrection, all mankind must appear in judgment, and receive sentence according to the deeds done in the body, without regard, so far as we know, to their actions and conduct in the middle state. After this sentence, the righteous are to enter into celestial and eternal joys, and the wicked to suffer the punishments of hell. These punishments some have supposed to be everlasting; others think, that after some temporary punishment, the souls of the wicked are to be annihilated; and others imagine, that after doing purgatorial penance for a while in hell, they are to be again received into favour; inclining to explain the denunciations of the Almighty as a child would do the threatenings of his mother, or a lover the affected chidings of his mistress (A).

RESUSCITATION, the same with resurrection and revivification. See the preceding article and **RE-ANIMATION**.

The term *resuscitation*, however, is more particularly used by chemists for the reproducing a mixed body from its ashes; an art to which many have pretended, as to reproduce plants, &c. from their ashes.

RETAIL, in commerce, is the selling of goods in small parcels, in opposition to wholesale. See **COMMERCE**.

RETAINER, a servant who does not continually dwell in the house of his master, but only attends upon special occasions.

RETAINING FEE, the first fee given to a serjeant or counsellor at law, in order to make him sure, and prevent his pleading on the contrary side.

RETALIATION, among civilians, the act of returning like for like.

RETARDATION, in physics, the act of diminishing the velocity of a moving body. See **GUNNERY**, **MECHANICS**, **PNEUMATICS**, and **PROJECTILES**.

RETE MIRABILE, in anatomy, a small plexus or network of vessels in the brain, surrounding the pituitary gland.

RETENTION is defined by Mr Locke to be, a faculty of the mind, whereby it keeps or retains those simple ideas it has once received, by sensation or reflection. See **METAPHYSICS**, Part I. Chap. ii.

RETENTION is also used, in medicine, &c. for the state of contraction in the solids or vascular parts of the body, which makes them hold fast their proper contents. In this sense, retention is opposed to evacuation and excretion.

RETICULAR BODY (*corpus reticulare*), in anatomy, a very fine membrane, perforated, in the manner of a net, with a multitude of foramina. It is placed immediately under the cuticle; and when that is separated from the cutis, whether by art or accident, this adheres firmly to it, and is scarce possible to be parted from it, seeming rather to be its inner superficies than a distinct substance. In regard to this, we are to observe, first, the places in which it is found, being all those in which the sense of feeling is most acute, as in the palms of the hands, the extremities of the fingers, and on the soles of the feet. The tongue, however, is the part where it is most accurately to be observed: it is more easily distinguishable there than anywhere else, and its nature and structure are most evidently seen there.

Its colour in the Europeans is white; but in the negroes and other black nations it is black; in the tawny: it is yellowish: the skin itself in both is white; and the blackness and yellowness depend altogether on the colour of this membrane.

The uses of the corpus reticulare are to preserve the structure of the other parts of the integuments, and keep them in their determinate form and situation. Its apertures give passage to the hairs and sweat through the papillæ and excretory ducts of the skin: it retains these in a certain and determinate order, that they cannot be removed out of their places, and has some share in preserving the softness of the papillæ, which renders them fit for the sense of feeling. See **ANATOMY**, n° 83.

RETICULUM, is a Latin word, signifying a *little or casting net*. It was applied by the Romans to a particular mode of constructing their buildings. In the city of Salino (see **SALINO**) are still to be seen remains of some walls, evidently of Roman origin from the *reticulum*. This structure consists of small pieces of baked earth cut lozengewise, and disposed with great regularity on the angles, so as to exhibit to the eye the appearance of cut diamonds; and was called *reticular*, from its resemblance to fishing-nets. The Romans always concealed it under a regular coating of other matter; and Mr Houel informs us, that this was the only specimen of it which he saw in all his travels through Sicily, Malta, and Lipari. It appears to be the remains of some baths, which

(A) The French convention, whose principles are equally new, daring, and destructive of all that is decent or of good report, have decided this question in a very summary way, by decreeing death to be an eternal sleep; a decree equally absurd in itself and fatal in its consequences. Since this article went to the press, however, we have learned, from the most respectable authority, that wild and absurd as the opinion is, it has been industriously propagated in this country, and that in some places it has gained ground. The consequences of this, were it to become general, must indeed be baneful beyond all conception; and we shall afterwards take occasion to expose the opinion and its nefarious consequences at greater length than it is now possible to do in this place. See **THEOLOGY**.

Retimo which have been built for the convenience of sea-bathing.

RETIMO, the ancient *Rhitymnia* of Stephen the geographer, and called by Ptolemy *Rhitymna*, is a fine city, lying at one end of a rich and fertile plain, on the north coast of the island of Candia. It is but a small place, containing scarce 6000 inhabitants; but it is a bishop's see, and the harbour is defended by a citadel, where a bashaw resides. It was taken by the Turks in 1647, and has been in their hands ever since. It is about 45 miles from Candia. E. Long. 24. 45. N. Lat. 35. 22.

The citadel, which stands on a rock jutting out into the sea, would be sufficient for the defence of the city, were it not situated at the foot of an high hill, from which it might be cannonaded with great advantage. The harbour is now almost filled with sand, and is no longer accessible to shipping; nor do the Turks in any measure oppose the ravages of time, but behold with a careless eye the most valuable works in a state of ruin. The French had formerly a vice-consul at Retimo, to which ships used to repair for cargoes of oil; but they have been long unable to get into the harbour: to repair which, however, and to revive the commerce of Retimo, would be a most useful attempt. The plains around the city abound in a variety of productions. Great quantities of oil, cotton, saffron, and wax, are produced here; and they would be produced in still greater quantities if the inhabitants could export their commodities. The gardens of Retimo bear the best fruits in the island; excellent pomegranates, almonds, pistacho nuts, and oranges. The apricot-tree, bearing the *michmich*, the juice of which is so delicious, and its flavour so exquisite, is found here. It is a kind of early peach, but smaller and more juicy than those of France.

RETINA, in anatomy, the expansion of the optic nerves over the bottom of the eye, where the sense of vision is first received. See *ANATOMY*, n° 142. and *OPTICS (Index) at Eye and Vision*.

RETINUE, the attendants or followers of a prince or person of quality, chiefly in a journey.

RETIRADE, in fortification, a kind of retrenchment made in the body of a bastion, or other work, which is to be disputed, inch by inch, after the defences are dismantled. It usually consists of two faces, which make a re-entering angle. When a breach is made in a bastion, the enemy may also make a *retirade* or new fortification behind it.

RETIREMENT, means a private way of life or a secret habitation. "Few (says an elegant writer) are able to bear solitude; and though retirement is the ostensible object of the greater part, yet, when they are enabled by success to retire, they feel themselves unhappy. Peculiar powers and elegance of mind are necessary to enable us to draw all our resources from ourselves. In a remote and solitary village the mind must be internally active in a great degree, or it will be miserable for want of employment. But in great and populous cities, even while it is passive, it will be constantly amused. It is impossible to walk the streets without finding the attention powerfully solicited on every side. No exertion is necessary. Objects pour themselves into the senses, and it would be difficult to prevent their admittance. But, in retirement, there must be a spirit of philosophy and a store of learning,

or else the fancied scenes of bliss will vanish like the colours of the rainbow. Poor Cowley might be said to be melancholy mad. He languished for solitude, and wished to hide himself in the wilds of America. But, alas! he was not able to support the solitude of a country village within a few miles of the metropolis!

"With a virtuous and cheerful family, with a few faithful and good-humoured friends, with a well-selected collection of elegant books, and with a competency, one may enjoy comforts even in the deserted village, which the city, with all its diversions, cannot supply."

RETORT, in chemistry, an oblong or globular vessel with its neck bent, proper for distillation. See *CHEMISTRY*, n° 576.

In the fifth volume of the *Transactions of the London Society for the Encouragement of Arts*, p. 96. we find a paper containing a method for preventing stone retorts from breaking; or stopping them when cracked, during any chemical operation, without losing any of the contained subject. "I have always found it necessary (says the writer) to use a previous coating for filling up the interstices of the earth or stone, which is made by dissolving two ounces of borax in a pint of boiling water, and adding to the solution as much slaked lime as will make it into a thin paste; this, with a common painter's brush, may be spread over several retorts, which when dry are then ready for the proper preserving coating. The intention of this first coating is, that the substances thus spread over, readily vitrifying in the fire, prevent any of the distilling matters from pervading the retort; but does in nowise prevent it from cracking.

"Whenever I want to use any of the above coated retorts; after I have charged them with the substance to be distilled, I prepare a thin paste, made with common linseed oil and slaked lime well mixed, and perfectly plastic, that it may be easily spread: with this let the retorts be covered all over except that part of the neck which is to be inserted into the receiver; this is readily done with a painter's brush: the coating will be sufficiently dry in a day or two, and they will then be fit for use. With this coating I have for several years worked my stone retorts, without any danger of their breaking, and have frequently used the same retort four or five times; observing particularly to coat it over with the last mentioned composition every time it is charged with fresh materials: Before I made use of this expedient, it was an even chance, in conducting operations in stone and earthen retorts, whether they did not crack every time; by which means great loss has been sustained. If at any time during the operation the retorts should crack, spread some of the oil composition thick on the part, and sprinkle some powder of slaked lime on it, and it immediately stops the fissure, and prevents any of the distilling matter from pervading; even that subtle penetrating substance the solid phosphorus will not penetrate through it. It may be applied without any danger, even when the retort is red hot; and when it is made a little stiffer, is more proper for luting vessels than any other I ever have tried; because if properly mixed it will never crack, nor will it indurate so as to endanger the breaking the necks of the vessels when taken off."

RETRACTS, among horsemen, pricks in a horse's feet, arising from the fault of the farrier in driving nails

Retort, Retracts.

Retreat
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Return.

that are weak, or in driving them ill-pointed, or otherwise amiss.

RETREAT, in a military sense. An army or body of men are said to retreat when they turn their backs upon the enemy, or are retiring from the ground they occupied: hence every march in withdrawing from the enemy is called a *retreat*.

That which is done in fight of an active enemy, who pursues with a superior force, is the most important part of the subject; and is, with reason, looked upon as the glory of the profession. It is a manœuvre the most delicate, and the properest to display the prudence, genius, courage, and address, of an officer who commands: the historians of all ages testify it; and historians have never been so lavish of eulogiums as on the subject of the brilliant retreats of our heroes. If it is important, it is no less difficult to regulate, on account of the variety of circumstances, each of which demands different principles, and an almost endless detail. Hence a good retreat is esteemed, by experienced officers, the masterpiece of a general. He should therefore be well acquainted with the situation of the country through which he intends to make it, and careful that nothing is omitted to make it safe and honourable. See WAR.

RETREAT, is also a beat of the drum, at the firing of the evening gun; at which the drum-major, with all the drums of the battalion, except such as are upon duty, beats from the camp-colours on the right to those on the left, on the parade of encampment: the drums of all the guards beat also; the trumpets at the same time sounding at the head of their respective troops. This is to warn the soldiers to forbear firing, and the sentinels to challenge, till the break of day that the reveille is beat. The retreat is likewise called *setting the watch*.

RETRENCHMENT literally signifies something cut off or taken from a thing; in which sense it is the same with subtraction, diminution, &c.

RETRENCHMENT, in the art of war, any kind of work raised to cover a post, and fortify it against the enemy, such as fascines loaded with earth, gambions, barrels of earth, sand-bags, and generally all things that can cover the men and stop the enemy. See FORTIFICATION and WAR.

RETRIBUTION, a handsome present, gratuity, or acknowledgment, given instead of a formal salary or hire, to persons employed in affairs that do not so immediately fall under estimation, nor within the ordinary commerce in money.

RETROMINGENTS, in natural history, a class or division of animals, whose characteristic is, that they stale or make water backwards, both male and female.

RETURN (*returna* or *retorna*), in law, is used in divers senses. 1. Return of writs by sheriffs and bailiffs is a certificate made by them to the court, of what they have done in relation to the execution of the writ directed to them. This is wrote on the back of the writ by the officer, who thus sends the writ back to the court from whence it issued, in order that it may be filed. 2. Return of a commission, is a certificate or answer sent to the court from whence the commission issues, concerning what has been done by the commissioners. 3. Returns, or days in bank, are certain days in each term, appointed for the return of writs, &c. Thus Hillary term has four returns, viz. in the king's-

bench, on the day next after the octave, or eighth day after Hillary day: on the day next after the fifteenth day from St Hillary; on the day after purification; and on the next after the octave of the purification. In the common pleas, in eight days of St Hillary: from the day of St Hillary, in fifteen days: on the day after the purification: in eight days of the purification. Easter term has five returns, viz. in the king's-bench, on the day next after the fifteenth day from Easter: on the day next after the three weeks from Easter: on the day next after one month from Easter: on the day next after five weeks from Easter: and on the day next after the day following ascension-day. In the common pleas, in fifteen days from the feast of Easter: in three weeks from the feast of Easter: in one month from Easter day: in five weeks from Easter day: on the day after the ascension-day. Trinity term has four returns, viz. on the day following the second day after Trinity: on the day following the eighth day after Trinity: on the day next after the fifteenth day from Trinity: on the day next after three weeks from Trinity. In the common pleas, on the day after Trinity: in eight days of Trinity: in fifteen days from Trinity: in three weeks from Trinity. Michaelmas term has six returns, viz. on the day next after three weeks from St Michael: on the day next after one month of St Michael: on the day following the second day after All-souls: on the day next after the second day after St Martin: on the day following the octave of St Martin: on the day next after fifteen days of St Martin. In the common pleas, in three weeks from St Michael: in one month from St Michael: on the day after All-souls: on the day after St Martin: on the octave of St Martin: in fifteen days from St Martin. It is to be observed, that, as in the king's-bench, all returns are to be made on some particular day of the week in each term, care must be taken not to make the writs out of that court returnable on a non-judicial day; such as Sunday, and All-saints, in Michaelmas term, the purification in Hillary, the ascension in Easter, and Midsummer-day, except it should fall on the first day of Trinity term.

RETURNS, in a military sense, are of various sorts, but all tending to explain the state of the army, regiment, or company; namely, how many capable of doing duty, on duty, sick in quarters, barracks, infirmary, or hospital; prisoners, absent with or without leave; total effective; wanting to complete the establishment, &c.

RETUSARI, an island in Russia, is a long slip of land, or rather sand, through the middle of which runs a ridge of granite. It is 20 miles from Petersburg by water, four from the shore of Ingria, and nine from the coast of Carelia. It is about 10 miles in circumference, and was overspread with firs and pines when Peter first conquered it from the Swedes. It contains at present about 30,000 inhabitants, including the sailors and garrison, the former of whom amount to about 12,000, the latter to 1500 men. The island affords a small quantity of pasture, produces vegetables, and a few fruits, such as apples, currants, gooseberries, and strawberries, which thrive in this northern climate.

RETZ (Cardinal de). See GONDI.

RETZIA, in botany; a genus of the monogynia order, belonging to the pentandria class of plants, and

Return
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Retzia.

Coxe's Travels into Russia.

ottingen to the 29th natural order, *Cambanacea*. The capsule is bilocular, the corolla cylindrical, and villous without; the stigma bifid.

REUTLINGEN, a handsome, free, and imperial town of Germany, in the circle of Suabia, and duchy of Wirtemberg; seated in a plain on the river Elchez, near the Neckar, adorned with handsome public buildings, and has a well frequented college. E. Long. 9. 10. N. Lat. 48. 31.

REVE, REEVE, or *Greve*, the bailiff of a franchise, or manor, thus called, especially in the west of England. Hence shire-reeve, sheriff, port-greve, &c.

REVEILLE, a beat of drum about break of day, to give notice that it is time for the soldiers to arise, and that the sentries are to forbear challenging.

REVEL, a port town of Livonia, situated at the south entrance of the gulph of Finland, partly in a plain and partly on a mountain; 133 miles south-west of Peterburg, and 85 south-east of Abo. It is a place of great trade, and holds two fairs yearly, which are visited by merchants from all countries, but particularly by those of England and Holland. It is a strong and a rich place, with a capital harbour. It is surrounded with high walls and deep ditches, and defended by a castle and stout bastions. It was confirmed to the Swedes at the peace of Oliva, conquered by Peter the Great in 1710, and ceded to Russia in 1721. The conquest of it was again attempted by the Swedes in 1790. The duke of Sudermania, with the Swedish fleet, attempted to carry the harbour; but after an obstinate engagement with the Russian fleet, he was obliged to give it up; but it was but for a very short while. He retired about 10 leagues from the harbour, to repair the damage his fleet had sustained, and to prepare for a second attack before any relief could be afforded to the Russian fleet. As soon as he had refitted, he sailed for the harbour, at a league distant from which the Russian fleet was discovered, ready to dispute with the Swedes the entrance. Upon a council being held by the Duke, it was resolved to attack the Russians; and the signals being given, the fleet bore down for the attack, which was maintained for near six hours with the utmost fury: at length the Swedes broke the Russian line, which threw them into much confusion; when the Swedes, taking the advantage of the general confusion into which the Russians were thrown, followed them with their whole force into the harbour, where the conflict and carnage were dreadful on both sides, though the Swedes certainly had the worst of it; at the same time that their skill and bravery is indisputable.

This valuable place was again confirmed to Russia by the peace. The government of Revel or Esthonia is one of the divisions of the Russian empire, containing five districts. 1. Revel, on the Baltic sea. 2. Baltic-port, about 40 versts westward from Revel. 3. Hapsal, or Hapsal, a maritime town. 4. Weissenstein, on the rivulet Saïda, about 80 versts from Revel. 5. Wefenberg, about 100 versts from Revel, at about an equal distance from that town and Narva.

REVELATION, the act of revealing, or making a thing public that was before unknown; it is also used for the discoveries made by God to his prophets, and by them to the world; and more particularly for the books of the Old and New Testament. See BIBLE,

CHRISTIANITY, MIRACLE, RELIGION, and THEOLOGY. Revelation.

The principal tests of the truth of any revelation, are the tendency of its practical doctrines; its consistency with itself, and with the known attributes of God; and some satisfactory evidence that it cannot have been derived from a human source.

Before any man can receive a written book as a revelation from God, he must be convinced that God exists, and that he is possessed of almighty power, infinite wisdom, and perfect justice. Now should a book teaching absurd or immoral doctrines (as many chapters of the Koran do, and as all the traditionary systems of Paganism did), pretend to be revealed by a God of wisdom and justice, we may safely reject its pretensions without farther examination than what is necessary to satisfy us that we have not misunderstood its doctrine. Should a book claiming this high origin, enjoin in one part of it, and forbid in another, the same thing to be done under the same circumstances, we may reject it with contempt and indignation; because a being of infinite wisdom can never act capriciously or absurdly. Still, however, as it is impossible for us to know how far the powers of men may reach in the investigation or discovery of useful truth, some farther evidence is necessary to prove a doctrine of divine origin, than its mere consistency with itself, and with the principles of morality; and this evidence can be nothing but the power of working miracles exhibited by him by whom it was originally revealed. In every revelation confirmed by this evidence, many doctrines are to be looked for which human reason cannot fully comprehend; and these are to be believed on the testimony of God, and suffered to produce their practical consequences. At this kind of belief the shallow infidel may smile contemptuously; but it has place in arts and sciences as well as in religion. Whoever avails himself of the demonstrations of Newton, Bernoulli, and others, respecting the resistance of fluids, and applies their conclusions to the art of ship-building, is as implicit a believer, if he understand not the principles of fluxions, as any Christian; and yet no man will say that his faith is not productive of important practical consequences. He believes, however, in man, while the Christian believes in God; and therefore he cannot pretend that his faith rests on a surer foundation.

Mr Locke, in laying down the distinct provinces of reason and faith, observes, 1. That the same truths may be discovered by revelation which are discoverable to us by reason. 2. That no revelation can be admitted against the clear evidence of reason. 3. That there are many things of which we have but imperfect notions, or none at all; and others, of whose past, present, or future existence, by the natural use of our faculties we cannot have the least knowledge; and these, being beyond the discovery of our faculties, and above reason, when revealed, become the proper object of our faith. He then adds, that our reason is not injured or disturbed, but assisted and improved, by new discoveries of truth coming from the fountain of knowledge. Whatever God has revealed is certainly true; but whether it be a divine revelation or not, reason must judge, which can never permit the mind to reject a greater evidence to embrace what is less evident.

Revelation cent. There can be no evidence that any traditional revelation is of divine original, in the words we receive it, and the sense we understand it, so clear and so certain as that of the principles of reason: and, therefore, nothing that is contrary to the clear and self-evident dictates of reason, has a right to be urged or assented to as a matter of faith, wherein reason has nothing to do.

REVELATION of St JOHN. See APOCALYPSE.

REVELS, entertainments of dancing, masking, acting comedies, farces, &c. anciently very frequent in the inns of court and in noblemen's houses, but now much disused. The officer who has the direction of the revels at court is called the *MASTER of the Revels*.

REVENGE, means the return of injury for injury, and differs materially from that sudden resentment which rises in the mind immediately on being injured; which, so far from being culpable when restrained within due bounds, is absolutely necessary for self-preservation. Revenge, on the contrary, is a cool and deliberate wickedness, and is often executed years after the offence was given; and the desire of it is generally the effect of littleness, weakness, and vice; while, to do right, and to suffer wrong, is an argument of a great soul, that scorns to stoop to suggested revenges.

Revenge is but a frailty incident
To craz'd and sickly minds; the poor content
Of little souls, unable to surmount
An injury, too weak to bear affront. *Dryden.*

Revenge is generally the concomitant of savage minds, of minds implacable, and capable of the most horrid barbarities; unable to set any limits to their displeasure, they can confine their anger within no bounds of reason.

Cruel revenge, which still we find
The weakest frailty of a feeble mind.
Degenerous passion, and for man too base,
It seats its empire in the savage race.

Juvenal.

The institution of law prevents the execution of private revenge, and the growth of civilization shows its impropriety. Though in modern times a species of revenge is sanctioned by what is called the law of honour, which evades the law of the land indeed, but which is equally mean and disgraceful as the other kinds, and is of consequences equally baneful. See *ANGER, DUELING, and RESENTMENT*.

REVENUE, the annual income a person receives from the rent of his lands, houses, interest of money in the stocks, &c.

Royal REVENUE, that which the British constitution hath vested in the royal person, in order to support his dignity and maintain his power; being a portion which each subject contributes of his property, in order to secure the remainder. This revenue is either *ordinary* or *extraordinary*.

I. The king's *ordinary* revenue is such as has either subsisted time out of mind in the crown; or else has been granted by parliament, by way of purchase or exchange for such of the king's inherent hereditary revenues as were found inconvenient to the subject.—In saying that it has subsisted time out of mind in the crown, we do not mean that the king is at pre-

sent in the actual possession of the whole of his revenue. Much (nay the greatest part) of it is at this day in the hands of subjects; to whom it has been granted out from time to time by the kings of England: which has rendered the crown in some measure dependent on the people for its ordinary support and subsistence. So that we must be obliged to recount, as part of the royal revenue, what lords of manors and other subjects frequently look upon to be their own absolute rights; because they and their ancestors are and have been vested in them for ages, though in reality originally derived from the grants of our ancient princes.

1. The first of the king's ordinary revenues, which may be taken notice of, is of an ecclesiastical kind (as are also the three succeeding ones), viz. the custody of the temporalities of bishops. See *TEMPORALITIES*.

2. The king is entitled to a *corody*, as the law calls it, out of every bishopric; that is, to send one of his chaplains to be maintained by the bishop, or to have a pension allowed him till the bishop promotes him to a benefice. This is also in the nature of an acknowledgement to the king, as founder of the see, since he had formerly the same corody or pension from every abbey or priory of royal foundation. It is supposed to be now fallen into total disuse; though Sir Matthew Hale says, that it is due of common right, and that no prescription will discharge it.

3. The king also is entitled to all the tithes arising in extraparochial places: though perhaps it may be doubted how far this article, as well as the last, can be properly reckoned a part of the king's own royal revenue; since a corody supports only his chaplains, and these extraparochial tithes are held under an implied trust that the king will distribute them for the good of the clergy in general.

4. The next branch consists in the first-fruits and tenths of all spiritual preferments in the kingdom. See *TENTHS*.

5. The next branch of the king's ordinary revenue (which, as well as the subsequent branches, is of a lay or temporal nature) consists in the rents and profits of the demesne lands of the crown. These demesne lands, *terra dominicales regis*, being either the share reserved to the crown at the original distribution of landed property, or such as came to it afterwards by forfeitures or other means, were anciently very large and extensive; comprising divers manors, honours, and lordships; the tenants of which had very peculiar privileges, when we speak of the tenure in ancient demesne. At present they are contracted within a very narrow compass, having been almost entirely granted away to private subjects. This has occasioned the parliament frequently to interpose; and particularly after King William III. had greatly impoverished the crown, an act passed, whereby all future grants or leases from the crown for any longer term than 31 years or three lives, are declared to be void; except with regard to houses, which may be granted for 50 years. And no reversionary lease can be made, so as to exceed, together with the estate in being, the same term of three lives or 31 years; that is, when there is a subsisting lease, of which there are 20 years still to come, the king cannot grant a future interest, to commence after the expiration of the former, for any longer term than 11

years.

years. The tenant must also be made liable to be punished for committing waste; and the usual rent must be reserved, or, where there has usually been no rent, one-third of the clear yearly value. The misfortune is, that this act was made too late, after almost every valuable possession of the crown had been granted away for ever, or else upon very long leases; but may be of benefit to posterity, when those leases come to expire.

6. Hither might have been referred the advantages which were used to arise to the king from the profits of his military tenures, to which most lands in the kingdom were subject, till the statute 12 Car. II. c. 24. which in great measure abolished them all. Hither also might have been referred the profitable prerogative of purveyance and pre-emption: which was a right enjoyed by the crown of buying up provisions and other necessities, by the intervention of the king's purveyors, for the use of his royal household, at an appraised valuation, in preference to all others, and even without consent of the owner: and also of forcibly impressing the carriages and horses of the subject, to do the king's business on the public roads, in the conveyance of timber, baggage, and the like, however inconvenient to the proprietor, upon paying him a settled price. A prerogative which prevailed pretty generally throughout Europe during the scarcity of gold and silver, and the high valuation of money consequential thereupon. In those early times, the king's household (as well as those of inferior lords) were supported by specific renders of corn, and other victuals, from the tenants of the respective demesnes; and there was also a continual market kept at the palace-gate to furnish viands for the royal use. And this answered all purposes, in those ages of simplicity, so long as the king's court continued in any certain place. But when it removed from one part of the kingdom to another (as was formerly very frequently done), it was found necessary to send purveyors beforehand, to get together a sufficient quantity of provisions and other necessities for the household: and, lest the unusual demand should raise them to an exorbitant price, the powers beforementioned were vested in these purveyors; who in process of time very greatly abused their authority, and became a great oppression to the subject, though of little advantage to the crown; ready money in open market (when the royal residence was more permanent, and specie began to be plenty) being found upon experience to be the best provider of any. Wherefore, by degrees, the powers of purveyance have declined, in foreign countries as well as our own: and particularly were abolished in Sweden by Gustavus Adolphus, towards the beginning of the last century. And, with us in England, having fallen into disuse during the suspension of monarchy, King Charles, at his restoration, consented, by the same statute, to resign entirely those branches of his revenue and power: and the parliament, in part of recompense, settled on him, his heirs, and successors, for ever, the hereditary excise of 15d. per barrel on all beer and ale sold in the kingdom, and a proportionable sum for certain other liquors. So that this hereditary excise now forms the sixth branch of his majesty's ordinary revenue.

7. A seventh branch might also be computed to have

arisen from wine-licences; or the rents payable to the crown by such persons as are licensed to sell wine by retail throughout Britain, except in a few privileged places. These were first settled on the crown by the statute 12 Car. II. c. 25. and, together with the hereditary excise, made up the equivalent in value for the loss sustained by the prerogative in the abolition of the military tenures, and the right of pre-emption and purveyance: but this revenue was abolished by the statute 30 Geo. II. c. 19. and an annual sum of upwards of L. 7000 *per annum*, issuing out of the new stamp-duties imposed on wine-licences, was settled on the crown in its stead.

8. An eighth branch of the king's ordinary revenue is usually reckoned to consist in the profits arising from his forests. See FOREST. These consist principally in the amercements or fines levied for offences against the forest-laws. But as few, if any, courts of this kind for levying amercements have been held since 1632, 8 Char. I. and as, from the accounts given of the proceedings in that court by our histories and law-books, nobody would wish to see them again revived, it is needless to pursue this inquiry any farther.

9. The profits arising from the king's ordinary courts of justice make a ninth branch of his revenue. And these consist not only in fines imposed upon offenders, forfeitures of recognizances, and amercements levied upon defaulters; but also in certain fees due to the crown in a variety of legal matters, as, for setting the great seal to charters, original writs, and other forensic proceedings, and for permitting fines to be levied of lands in order to bar entails, or otherwise to insure their title. As none of these can be done without the immediate intervention of the king, by himself or his officers, the law allows him certain perquisites and profits, as a recompense for the trouble he undertakes for the public. These, in process of time, have been almost all granted out to private persons, or else appropriated to certain particular uses: so that, though our law proceedings are still loaded with their payment, very little of them is now returned into the king's exchequer; for a part of whose royal maintenance they were originally intended. All future grants of them, however, by the statute 1 Ann. st. 2. c. 7. are to endure for no longer time than the prince's life who grants them.

10. A tenth branch of the king's ordinary revenue, said to be grounded on the consideration of his guarding and protecting the seas from pirates and robbers, is the right to *royal fish*, which are whale and sturgeon: and these, when either thrown ashore, or caught near the coasts, are the property of the king, on account of their superior excellence. Indeed, our ancestors seem to have entertained a very high notion of the importance of this right; it being the prerogative of the kings of Denmark and the dukes of Normandy; and from one of these it was probably derived to our princes.

11. Another maritime revenue, and founded partly upon the same reason, is that of SHIPWRECKS. See WRECK.

12. A twelfth branch of the royal revenue, the right to mines, has its original from the king's prerogative of coinage, in order to supply him with materials; and there-

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13. To the same original may in part be referred the revenue of treasure-trove. See **TREASURE-TROVE**.

14. Waifs. See **WAIF**.

15. Estrays. See **ESTRAY**.

Besides the particular reasons, given in the different articles, why the king should have the several revenues of royal fish, shipwrecks, treasure-trove, waifs, and estrays, there is also one general reason which holds for them all; and that is, because they are *bona vacantia*, or goods in which no one else can claim a property. And, therefore, by the law of nature, they belonged to the first occupant or finder; and so continued under the imperial law. But, in settling the modern constitutions of most of the governments in Europe, it was thought proper (to prevent that strife and contention which the mere title of occupancy is apt to create and continue, and to provide for the support of public authority in a manner the least burdensome to individuals) that these rights should be annexed to the supreme power by the positive laws of the state. And so it came to pass, that, as Bracton expresses it, "*hæc, quæ nullius in bonis sunt; et olim fuerunt inventoris de jure naturali, jam efficiuntur principis de jure gentium.*"

16. The next branch of the king's ordinary revenue consists in forfeitures of lands and goods for offences; *bona confiscata*, as they are called by the civilians, because they belonged to the *fiscus* or imperial treasury; or, as our lawyers term them, *foris facta*, that is, such whereof the property is gone away or departed from the owner. The true reason and only substantial ground of any forfeiture for crimes, consist in this; that all property is derived from society, being one of those civil rights which are conferred upon individuals, in exchange for that degree of natural freedom which every man must sacrifice when he enters into social communities. If, therefore, a member of any national community violates the fundamental contract of his association, by transgressing the municipal law, he forfeits his right to such privileges as he claims by that contract; and the state may very justly resume that portion of property, or any part of it, which the laws have before assigned him. Hence, in every offence of an atrocious kind, the laws of England have exacted a total confiscation of the moveables or personal estate; and, in many cases, a perpetual, in others only a temporary, loss of the offender's immoveables or landed property; and have vested them both in the king, who is the person supposed to be offended, being the one visible magistrate in whom the majesty of the public resides. See **FORFEITURE** and **DEODAND**.

17. Another branch of the king's ordinary revenue arises from escheats of lands, which happen upon the defect of heirs to succeed to the inheritance; whereupon they in general revert to and vest in the king, who is esteemed, in the eye of the law, the original proprietor of all lands in the kingdom.

18. The last branch of the king's ordinary revenue, consists in the custody of idiots, from whence we shall be naturally led to consider also the custody of lunatics. See **IDIOT** and **LUNATIC**.

This may suffice for a short view of the king's ordi-

nary revenue, or the proper patrimony of the crown; which was very large formerly, and capable of being increased to a magnitude truly formidable: for there are very few estates in the kingdom that have not, at some period or other since the Norman conquest, been vested in the hands of the king, by forfeiture, escheat, or otherwise. But, fortunately for the liberty of the subject, this hereditary landed revenue, by a series of improvident management, is sunk almost to nothing; and the casual profits, arising from the other branches of the *census regalis*, are likewise almost all of them alienated from the crown. In order to supply the deficiencies of which, we are now obliged to have recourse to new methods of raising money, unknown to our early ancestors; which methods constitute.

II. The king's extraordinary revenue. For, the public patrimony being got into the hands of private subjects, it is but reasonable that private contributions should supply the public service. Which, though it may perhaps fall harder upon some individuals, whose ancestors have had no share in the general plunder, than upon others, yet, taking the nation throughout, it amounts to nearly the same; provided the gain by the extraordinary should appear to be no greater than the loss by the ordinary revenue. And perhaps, if every gentleman in the kingdom was to be stripped of such of his lands as were formerly the property of the crown, was to be again subject to the inconveniences of purveyance and pre-emption, the oppression of forest-laws, and the slavery of feudal-tenures; and was to resign into the king's hands all his royal franchises of waifs, wrecks, estrays, treasure-trove, mines, deodands, forfeitures, and the like; he would find himself a greater loser than by paying his *quota* to such taxes as are necessary to the support of government. The thing, therefore, to be wished and aimed at in a land of liberty, is by no means the total abolition of taxes, which would draw after it very pernicious consequences, and the very supposition of which is the height of political absurdity. For as the true idea of government and magistracy will be found to consist in this, that some few men are deputed by many others to preside over public affairs, so that individuals may the better be enabled to attend their private concerns; it is necessary that those individuals should be bound to contribute a portion of their private gains, in order to support that government, and reward that magistracy, which protects them in the enjoyment of their respective properties. But the things to be aimed at are wisdom and moderation, not only in granting, but also in the method of raising, the necessary supplies; by contriving to do both in such a manner as may be most conducive to the national welfare, and at the same time most consistent with economy and the liberty of the subject; who, when properly taxed, contributes only, as was before observed, some part of his property in order to enjoy the rest.

These extraordinary grants are usually called by the synonymous names of *aids*, *subsidies*, and *supplies*; and are granted by the commons of Great Britain, in parliament assembled. See **PARLIAMENT** and **TAX**.

The clear nett produce of the several branches of the revenue, after all charges of collecting and management paid, amounted in the year 1786 to about L. 15,397,000 Sterling, while the expenditure was found

found to be about L. 14,477,000. How these immense sums are appropriated, is next to be considered. And this is, first and principally, to the payment of the interest of the national debt. See *NATIONAL DEBT AND FUNDS*.

The respective produces of the several taxes were originally separate and distinct funds; being securities for the sums advanced on each several tax, and for them only. But at last it became necessary, in order to avoid confusion, as they multiplied yearly, to reduce the number of these separate funds, by uniting and blending them together; superadding the faith of parliament for the general security of the whole. So that there are now only three capital funds of any account, the *aggregate* fund, and the *general* fund, so called from such union and addition; and the *South-Sea* fund, being the produce of the taxes appropriated to pay the interest of such part of the national debt as was advanced by that company and its annuitants. Whereby the separate funds, which were thus united, are become mutual securities for each other; and the whole produce of them, thus aggregated, liable to pay such interest or annuities as were formerly charged upon each distinct fund: the faith of the legislature being moreover engaged to supply any casual deficiencies.

The customs, excises, and other taxes, which are to support these funds, depending on contingencies, upon exports, imports, and consumptions, must necessarily be of a very uncertain amount; but they have always been considerably more than was sufficient to answer the charge upon them. The surplusses, therefore, of the three great national funds, the *aggregate*, *general*, and *South-Sea* funds, over and above the interest and annuities charged upon them, are directed by statute 3 Geo. I. c. 7. to be carried together, and to attend the disposition of parliament; and are usually denominated the *sinking fund*, because originally destined to sink and lower the national debt. To this have been since added many other entire duties, granted in subsequent years; and the annual interest of the sums borrowed on their respective credits is charged on, and payable out of, the produce of the sinking fund. However, the nett surplusses and savings, after all deductions paid, amount annually to a very considerable sum. For as the interest on the national debt has been at several times reduced (by the consent of the proprietors, who had their option either to lower their interest or be paid their principal), the savings from the appropriated revenues must needs be extremely large.

But, before any part of the aggregate fund (the surplusses whereof are one of the chief ingredients that form the sinking fund) can be applied to diminish the principal of the public debt, it stands mortgaged by parliament to raise an annual sum for the maintenance of the king's household and the civil list. For this purpose, in the late reigns, the produce of certain branches of the excise and customs, the post-office, the duty on wine-licences, the revenues of the remaining crown-lands, the profits arising from courts of justice, (which articles include all the hereditary revenues of the crown), and also a clear annuity of L. 120,000 in money, were settled on the king for life, for the support of his majesty's household, and the honour and dignity of the crown. And, as the amount of these several branches was uncertain, (though in the last reign they were computed to have sometimes raised almost a

million), if they did not arise annually to L. 800,000, the parliament engaged to make up the deficiency. But his present majesty having, soon after his accession, spontaneously signified his consent that his own hereditary revenues might be so disposed of as might best conduce to the utility and satisfaction of the public, and having graciously accepted a limited sum, the said hereditary and other revenues are now carried into, and made a part of, the aggregate fund; and the aggregate fund is charged with the payment of the whole annuity to the crown. The limited annuity accepted by his present majesty was at first L. 800,000, but it has been since augmented to L. 900,000. The expences themselves, being put under the same care and management as the other branches of the public patrimony, produce more, and are better collected than heretofore; and the public is a gainer of upwards of L. 100,000 *per annum* by this disinterested bounty of his majesty.

The sinking fund, though long talked of as the last resource of the nation, proved very inadequate to the purpose for which it was established. Ministers found pretences for diverting it into other channels; and the diminution of the national debt proceeded slowly during the intervals of peace, whilst each succeeding war increased it with great rapidity. To remedy this evil, and restore the public credit, to which the late war had given a considerable shock, Mr Pitt conceived a plan for diminishing the debt by a fund, which should be rendered unalienable to any other purpose. In the session 1786, he moved that the annual surplus of the revenue above the expenditure should be raised, by additional taxes, from L. 900,000 to one million Sterling, and that certain commissioners should be vested with the full power of disposing of this sum in the purchase of stock (see *FUNDS*), for the public, in their own names. These commissioners should receive the annual million by quarterly payments of L. 250,000, to be issued out of the exchequer before any other money, except the interest of the national debt itself; by these provisions, the fund would be secured, and no deficiencies in the national revenues could affect it, but such must be separately provided for by parliament.

The accumulated compound interest on a million yearly, together with the annuities that would fall into that fund, would, he said, in 28 years amount to such a sum as would leave a surplus of four millions annually, to be applied, if necessary, to the exigencies of the state. In appointing the commissioners, he should, he said, endeavour to choose persons of such weight and character as corresponded with the importance of the commission they were to execute. The speaker of the house of commons, the chancellor of the exchequer, the master of the rolls, the governor and deputy governor of the bank of England, and the accountant-general of the high court of chancery, were persons who, from their several situations, he should think highly proper to be of the number.

To the principle of this bill no objection was made, though several specious but ill-founded ones were urged against the sufficiency of the mode which the chancellor of the exchequer had adopted for the accomplishment of so great and so desirable an end. He had made it a clause in his bill, that the accumulating million should never be applied but to the purchase of stock. To this clause Mr Fox objected, and moved that the commis-

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sioners therein named should be impowered to accept so much of any future loan as they should have cash belonging to the public to pay for. This, he said, would relieve that distress the country would otherwise be under, when, on account of a war, it might be necessary to raise a new loan: whenever that should be the case, his opinion was, that the minister should not only raise taxes sufficiently productive to pay the interest of the loan, but also sufficient to make good to the sinking fund whatsoever had been taken from it.

If, therefore, for instance, at any future period a loan of six millions was proposed, and there was at that time one million in the hands of the commissioners, in such case they should take a million of the loan, and the *bonus* or *douceur* thereupon should be received by them for the public. Thus government would only have five millions to borrow instead of six; and from such a mode of proceeding, he said, it was evident great benefit would arise to the public.

This clause was received by Mr Pitt with the strongest marks of approbation, as was likewise another, moved by Mr Pulteney, enabling the commissioners named in the bill to continue purchasing stock for the public when it is above par, unless otherwise directed by parliament. With these additional clauses the bill was read a third time on the 15th of May, and carried up to the Lords, where it also passed without meeting with any material opposition, and afterwards received the royal assent.

The operation of this bill surpassed perhaps the minister's most sanguine expectation. The fund was ably managed, and judiciously applied; and in 1793 the commissioners had extinguished some millions of the public debt. The war, however, into which the nation was that year involved, and of which there is yet no certain prospect of a near end, has made it necessary to borrow additional sums, so large, that many years of peace must elapse before the operation of the fund can contribute sensibly to the relief of the people. The clear produce of the taxes raised on the people of this country was, in the year 1792, very near L. 17,000,000; and it must henceforth, from the accumulation of the debt, and the enormous expence of the present war, be necessarily rendered greater.

REVENUE, in hunting, a fleshy lump formed chiefly by a cluster of whitish worms on the head of the deer, supposed to occasion the casting of their horns by gnawing them at the root.

REVERBERATION, in physics, the act of a body repelling or reflecting another after its impinging thereon.

REVERBERATION, in chemistry, denotes a kind of circulation of the flame by means of a reverberatory furnace.

REVERBERATORY, or REVERBERATING Furnace. See CHEMISTRY-Index at Furnace, and FURNACE.

REVEREND, a title of respect given to ecclesiastics.—The religious abroad are called *reverend fathers*, and abbesses, prioresses, &c. *reverend mothers*. In England, bishops are *right reverend*, and archbishops *most reverend*. In France, before the Revolution, their bishops, archbishops, and abbots, were all alike *most reverend*. In Scotland the clergy individually are *reverend*, a synod is *very reverend*, and the general assembly is *venerable*.

REVERIE, the same with delirium, raving, or distraction. It is used also for any ridiculous, extra-

vagant imagination, action, or proposition, a chimera, Reverie or vision. But the most ordinary use of the word among English writers, is for a deep disorderly musing or meditation.

REVERSAL of JUDGMENT, in law. A judgment may be falsified, reversed, or voided, in the first place; *without a writ of error*, for matters foreign to or *dehors* the record, that is, not apparent upon the face of it; so that they cannot be assigned for error in the superior court, which can only judge from what appears in the record itself; and therefore, if the whole record be not certified, or not truly certified, by the inferior court, the party injured thereby (in both civil and criminal cases) may allege a diminution of the record, and cause it to be rectified. Thus, if any judgment whatever be given by persons who had no good commission to proceed against the person condemned, it is void; and may be falsified by shewing the special matter, without writ of error. As, where a commission issues to A and B, and twelve others, or any two of them, of which A or B shall be one, to take and try indictments; and any of the other twelve proceed without the interposition or presence of either A or B: in this case all proceedings, trials, convictions, and judgments, are void for want of a proper authority in the commissioners, and may be falsified upon bare inspection, without the trouble of a writ of error; it being a high misdemeanour in the judges so proceeding, and little (if any thing) short of murder in them all, in case the person so attainted be executed and suffer death. So likewise if a man purchases land of another; and afterwards the vender is, either by outlawry or his own confession, convicted and attainted of treason or felony previous to the sale or alienation; whereby such land becomes liable to forfeiture or escheat: now, upon any trial, the purchaser is at liberty, without bringing any writ of error, to falsify not only the time of the felony or treason supposed, but the very point of the felony or treason itself; and is not concluded by the confession or the outlawry of the vender, though the vender himself is concluded, and not suffered now to deny the fact, which he has by confession or flight acknowledged. But if such attainer of the vender was by verdict, on the oath of his peers, the alience cannot be received to falsify or contradict the *fact* of the crime committed; though he is at liberty to prove a mistake in *time*, or that the offence was committed after the alienation, and not before.

Secondly, a judgment may be reversed, *by writ of error*, which lies from all inferior criminal jurisdictions to the court of king's-bench, and from the king's-bench to the house of peers; and may be brought for notorious mistakes in the judgment or other parts of the record: as where a man is found guilty of perjury, and receives the judgment of felony, or for other less palpable errors; such as any irregularity, omission, or want of form in the process of outlawry, or proclamations; the want of a proper addition to the defendant's name, according to the statute of additions; for not properly naming the sheriff or other officer of the court, or not duly describing where his county-court was held: for laying an offence, committed in the time of the late king, to be done against the peace of the present; and for many other similar causes, which (though allowed out of tenderness to life and liberty) are not much to the credit or advancement of the national justice.—These writs of error, to reverse judgments in case of

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misdeameanours, are not to be allowed of course, but on sufficient probable cause shown to the attorney-general; and then they are understood to be grantable of common right, and *ex debito iustitie*. But writs of error to reverse attainders in capital cases are only allowed *ex gratia*; and not without express warrant under the king's sign-manual, or at least by the consent of the attorney-general. These therefore can rarely be brought by the party himself, especially where he is attainted for an offence against the state: but they may be brought by his heir or executor after his death, in more favourable times; which may be some consolation to his family. But the easier and more effectual way is,

Lastly, to reverse the attainder by act of parliament. This may be and hath been frequently done upon motives of compassion, or perhaps the zeal of the times, after a sudden revolution in the government, without examining too closely into the truth or validity of the errors assigned. And sometimes, though the crime be universally acknowledged and confessed, yet the merits of the criminal's family shall after his death obtain a restitution in blood, honours, and estate, or some or one of them, by act of parliament; which (so far as it extends) has all the effect of reversing the attainder, without casting any reflections upon the justice of the preceding sentence. See **ATTAINDER**.

The effect of falsifying or reversing an outlawry is, that the party shall be in the same plight as if he had appeared upon the *capias*: and, if it be before plea pleaded, he shall be put to plead to the indictment; if, after conviction, he shall receive the sentence of the law; for all the other proceedings, except only the process of outlawry for his non-appearance, remain good and effectual as before. But when judgment, pronounced upon conviction, is falsified or reversed, all former proceedings are absolutely set aside, and the party stands as if he had never been at all accused; restored in his credit, his capacity, his blood, and his estates: with regard to which last, though they be granted away by the crown, yet the owner may enter upon the grantee, with as little ceremony as he might enter upon a disseisor.—But he still remains liable to another prosecution for the same offence: for, the first being erroneous, he never was in jeopardy thereby.

REVERSE of a medal, coin, &c. denotes the second or back side, in opposition to the head or principal figure.

REVERSION, in Scots law. See **LAW**, N^o clxix. I—3.

REVERSION, in the law of England, has two significations; the one of which is an estate left, which continues during a particular estate in being; and the other is the returning of the land, &c. after the particular estate is ended; and it is further said to be an interest in lands, when the possession of it fails, or where the estate which was for a time parted with, returns to the granters, or their heirs. But, according to the usual definition of a reversion, it is the residue of an estate left in the granter, after a particular estate granted away ceases, continuing in the granter of such an estate.

The difference between a remainder and a reversion consists in this, that the remainder may belong to any man except the granter; whereas the reversion returns to him who conveyed the lands, &c.

In order to render the doctrine of reversions easy, we shall give the following table; which shows the present value of one pound, to be received at the end of any number of years not exceeding 40; discounting at the rate of 5, 4, and 3 per cent. compound interest.

Years	Value at 5 per ct.	Value at 4 per ct.	Value at 3 per ct.
1	.9524	.9615	.9709
2	.9070	.9245	.9426
3	.8638	.8898	.9151
4	.8227	.8548	.8885
5	.7835	.8219	.8626
6	.7462	.7903	.8375
7	.7107	.7599	.8131
8	.6768	.7307	.7894
9	.6446	.7026	.7664
10	.6139	.6756	.7441
11	.5847	.6496	.7224
12	.5568	.6246	.7014
13	.5303	.6006	.6809
14	.5051	.5775	.6611
15	.4810	.5553	.6419
16	.4581	.5339	.6232
17	.4363	.5134	.6050
18	.4155	.4936	.5874
19	.3957	.4746	.5703
20	.3769	.4564	.5537
21	.3589	.4388	.5375
22	.3418	.4219	.5219
23	.3255	.4057	.5067
24	.3100	.3901	.4919
25	.2953	.3757	.4776
26	.2812	.3607	.4637
27	.2678	.3468	.4502
28	.2551	.3335	.4371
29	.2429	.3206	.4243
30	.2314	.3083	.4120
31	.2204	.2965	.4000
32	.2099	.2851	.3883
33	.1999	.2741	.3770
34	.1903	.2636	.3660
35	.1813	.2534	.3554
36	.1726	.2437	.3450
37	.1644	.2343	.3350
38	.1566	.2253	.3252
39	.1491	.2166	.3158
40	.1420	.2083	.3066

The use of the preceding table.—To find the present value of any sum to be received at the end of a given term of years, discounting at the rate of 3, 4, or 5 per cent. compound interest. Find by the above table the present value of 1l. to be received at the end of the given term; which multiply by the number of pounds proposed, (cutting off four figures from the product on account of the decimals), then the result will be the value sought: For example, the present value of 10,000l.

to

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to be received 10 years hence, and the rate of interest 5 per cent. is equal to $.6139 \times 10,000 = 6139.0001$. or 6139l. Again, the present value of 10,000l. due in ten years, the rate of interest being 3 per cent. is $.7441 \times 10,000 = 7441$.

REVERSION of Series, in algebra, a kind of reversed operation of an infinite series. See SERIES.

REVIVIFICATION, in chemistry, a term generally applied to the distillation of quicksilver from cinnabar.

COMMISSION OF REVIEW, is a commission sometimes granted, in extraordinary cases, to revise the sentence of the court of delegates, when it is apprehended they have been led into a material error. This commission the king may grant, although the statutes 24 and 25 Hen. VIII. declare the sentence of the delegates definitive; because the pope, as supreme head by the canon law, used to grant such commission of review; and such authority as the pope heretofore exerted is now annexed to the crown by statutes 26 Hen. VIII. c. 1. and 1 Eliz. c. 1. But it is not matter of right, which the subject may demand *ex debito justitiæ*; but merely a matter of favour, and which therefore is often denied.

REVIEW, is the drawing out all or part of the army in line of battle, to be viewed by the king, or a general, that they may know the condition of the troops.

At all reviews, the officers should be properly armed, ready in their exercise, salute well, in good time, and with a good air; their uniform genteel, &c. The men should be clean and well dressed; their accoutrements well put on; very well fixed in their ranks; the sergeants expert in their duty, drummers perfect in their beatings, and the fifers play correct. The manual exercise must be performed in good time, and with life; and the men carry their arms well; march, wheel, and form with exactness. All manoeuvres must be performed with the utmost regularity, both in quick and slow time. The firings are generally 36 rounds; viz. by companies; by grand divisions; by sub-divisions; obliquely, advancing, retreating; by files; in the square; street firings, advancing and retreating; and lastly, a volley. The intention of a review is, to know the condition of the troops, see that they are complete and perform their exercise and evolutions well.

REVIEW is also applied to Literary Journals, which give a periodical view of the state of literature;—as the Monthly Review, the Critical Review, the British Critic, and Analytical Review, &c.

RE-UNION ISLAND, an island in the South Sea, discovered by the French on the 16th December 1773; lying, according to M. de Pages, in latitude $48^{\circ} 21'$, and longitude $66^{\circ} 47'$, the variation of the needle being 30° always towards north-west. The road and harbour are extremely good, and the latter from 16 to 8 fathoms deep at the very shore. The coast on each side is lofty, but green, with an abrupt descent, and swarms with a species of bustards. The penguins and sea-lions, which swarmed on the sands, were nowise alarmed at the approach of those who landed; from whence M. de Pages concluded that the country was wholly uninhabited. The soil produces a kind of grass, about five inches long, with a broad black leaf, and seemingly of a rich quality—but there was no vestige of a tree or

human habitation. See *Travels round the World* by M. de Pages, Vol. III. chap. viii. and ix.

REVOLUTION, in politics, signifies a change in the constitution of a state; and is a word of different import from *revolt*, with which it is sometimes confounded. When a people withdraw their obedience from their governors for any particular reason, without overturning the government, or waging an offensive war against it, they are in a state of revolt; when they overturn the government and form a new one for themselves, they effect a *revolution*.

That which is termed *the revolution* in Britain is the change which, in 1688, took place in consequence of the forced abdication of king James II. when the Protestant succession was established, and the constitution restored to its primitive purity. Of this important transaction, which confirmed the rights and liberties of Britons, we have endeavoured to give an impartial account under another article (see BRITAIN, n^o 281, &c.). Of the rise and progress of the American revolution, which is still fresh in the memory of our readers, a large detail is given under the article AMERICA: But there are two other revolutions yet depending, of which some account will be expected in this place.

The Polish revolution, which, in all its circumstances, was perhaps the least exceptionable of any in the records of history, we have already traced to the period when the amiable king, over-awed by the arms of Russia, was obliged to undo his patriotic work, and give his sanction to the restoration of the old and wretched government (see POLAND). Since that period, Kosciusko's army has been completely defeated, himself made a prisoner, Warsaw taken, and the whole kingdom subdued by the powers combined against it. What will be the consequence of this success may perhaps be conceived, but the rumours of the day are various. At one time we are told, that Poland is to be no longer an independent state, but to be divided among the three great powers which formerly wrested from it some of its most valuable provinces. At another time, we hear of the disinterested intention of the Empress, to restore the king to his original authority; although she has, in the mean time, driven him from his capital, where she herself exercises sovereign power. And a third report says, that Stanislaus is to retire with a large pension, and a Russian prince to step into his throne. The first of these rumours we think more probable than the other two: especially as it seems confirmed by the following letter sent from Grodno, on the 18th of January, by the unfortunate king to the British ambassador.

"MY DEAR GARDINER—"The characters with which you and I have been invested seem to be now almost at an end. I do not expect to see you again, but it is of importance to me to bid you farewell; and this I do from the bottom of my heart. You will preserve a place in my heart till death; and I hope that at last we shall meet again, in a place where upright minds, according to my opinion, will be for ever united.

"Every thing belonging to the usual etiquette has been so much deranged and interrupted by my sad fate, that most probably neither you nor I will be able to fulfil the diplomatic customs.

"But be assured, that I love and honour your king

and nation. This you will apprise them of. Be assured also, that I wish you should preserve an affection towards your friend. If I am able to speak to you no more, my picture will speak to you for me! (Signed) STANISLAUS AUGUSTUS, KING."

This shows, at least, the fate of the king; and leaving that of the kingdom to be ascertained by time, we proceed to fulfil a promise which we made respecting another revolution, to which all the nations of Europe are still looking with anxiety and alarm.

When treating of France under a former article, we stated a few of the more striking historical facts which led to the commencement of the revolution; and we now come to trace the series of transactions which have marked its terrible career. In doing this, we shall compress our ideas as much as possible; and out of the endless variety of materials of which the public are in possession, we shall endeavour to extract a short and, if possible, a tolerably clear detail. For this purpose, however, it will be necessary that we begin, by stating the internal situation of France at the period immediately preceding the revolution, along with the more obvious political circumstances which contributed to the production of that event. The moral history of man is always more important than the mere recital of any physical occurrences that may take place in his lot. It is not the fall of a mighty monarch and the dispersion of his family; it is not the convulsion of empires, and the oceans of human blood which have been shed, that render the French revolution peculiarly interesting. Such events, however deplorable, are far from being without example in the history of mankind. In the populous regions of the east, where superstition and slavery have always prevailed, they are regarded as forming a part of the ordinary course of human affairs; because an intrepid and skilful usurper finds it easy to intimidate or ensnare millions of weak and credulous men. In Europe the case is very different; no adventurer can advance far without encountering thousands as artful and as daring as himself. Events are not the result either of blind hazard or of individual skill; conspiracies or plots produce little effect. Like other arts, the art of government has been brought to much perfection; and an established constitution can only be shaken by the strong convulsion produced by national passions and efforts. The wonderful spectacle which we are now to contemplate, is that of a mild and polished people becoming in an instant sanguinary and fierce; a well established government, celebrated for its dexterity and skill, overturned almost without a struggle; a whole nation apparently uniting to destroy every institution which antiquity had hallowed or education taught them to respect; a superstitious people treating the religion of their fathers with contempt; a long enslaved people, whose very chains had become dear to them, occupied in their public councils in the discussion of refined, and even visionary schemes of freedom: in short, 25,000,000 of persons suddenly treading under foot every sentiment and every prejudice that they themselves had once regarded as sacred and venerable.

Like the other nations of Europe, France was anciently governed by a barbarous aristocracy, whose different members were feebly united by the authority of a succession of kings destitute of power or influence. The nobles, within their own territories, enjoyed privi-

leges entirely royal: they made peace and war; they coined money; they were judges in the last resort; their vassals were their slaves, whom they bought and sold along with the lands; the inhabitants of cities, although freemen, were depressed and poor, depending for protection upon some tyrannical baron in their neighbourhood. At length, however, by the progress of the arts, the cities rose into considerable importance, and their inhabitants, along with such freemen of low rank as resided in the country, were considered as entitled to a representation in the states-general of the kingdom, under the appellation of *tiers état*, or *third estate*; the clergy and the nobles forming the two first estates. But the sovereign, having speedily become despotic, the meetings of the states general were laid aside. This absolute authority, on the part of the crown, was not acquired, as it was in England by the house of Tudor, by abolishing the pernicious privileges of the nobles and elevating the commons; but by skilful encroachments, by daring exertions of prerogative, and the use of a powerful military force. In France, therefore, the monarch was absolute, yet the nobles retained all their feudal privileges, and the ecclesiastical hierarchy did the same. The following was, in a few words, the state of that country during these two last centuries.

The kingdom of France, previous to the revolution, was never reduced to one homogenous mass. It consisted of a variety of separate provinces acquired by different means; some by marriage, some by legacy, and others by conquest. Each province retained its ancient laws and privileges, whether political or civil, as expressed in their capitularies or conditions by which they were originally acquired. In one part of his dominions the French monarch was a count, in another he was a duke, and in others he was a king; the only bond which united his vast empire being the strong military force by which it was overawed. Each province had its barriers; and the intercourse betwixt one province and another was often more restrained by local usages than the intercourse of either with a foreign country. Some of the provinces, such as Bretagne and Dauphiné, even retained the right of assembling periodically their provincial states; but these formed no barrier against the power of the court.

The clergy formed the first estate of the kingdom in point of precedence. They amounted to 130,000. The higher orders of them enjoyed immense revenues; but the *curés* or great body of acting clergy seldom possessed more than about L. 28 Sterling a-year, and their *vicaires* about half that sum. A few of their dignified clergy were men of great piety, who resided constantly in their dioceses, and attended to the duties of their office; but by far the greater number of them passed their lives at Paris and Versailles, immersed in all the intrigues and dissipation of a gay and corrupted court and capital. They were almost exclusively selected from among the younger branches of the families of the most powerful nobility, and accounted it a kind of dishonour to the order of bishops for any person of low rank to be admitted into it. The lower clergy, on the contrary, were persons of mean birth, and had little chance of preferment. At the same time, we find several respectable exceptions to this last rule. The clergy, as a body, independent of the tithes, possessed a revenue arising from their property in land, amounting to

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to four or five millions Sterling annually; at the same time they were exempt from taxation. The crown had of late years attempted to break through this privilege. To avoid the danger, the clergy presented to the court a free gift of a sum of money somewhat short of a million Sterling every five years.

The nobility was nominally the second order of the state; but it was in reality the first. The nobles amounted to no less than 200,000 in number. The title and rank descended to all the children of the family, but the property to the eldest alone: hence vast multitudes of them were dependent upon the bounty of the court. They regarded the useful and commercial arts as dishonourable, and even the liberal professions of the law and physic as in a great measure beneath their dignity, disdainful to intermarry with the families of their professors. The feudal system in its purity was extremely favourable to the production of respectable qualities in the minds of those who belonged to the order of the nobles; but the introduction of commerce has rendered its decline equally unfavourable to that class of men. Instead of the ancient patriarchal attachment between the feudal chieftain and his vassals, the nobility had become greedy landlords in the provinces, that they might appear in splendor at court and in the capital. There, lost in intrigue, sensuality, and vanity, their characters became frivolous and contemptible. Such of the French noblesse, however, as remained in the provinces, regarded with indignation this degradation of their order, and still retained a proud sense of honour and of courage, which has always rendered them respectable. The order of the nobles was exempted from the payment of taxes, although the property of some of them was immense. The estates of the prince of Conde, for example, were worth L. 200,000 a year, and those of the duke of Orleans nearly twice as much. The crown had indeed imposed some trifling taxes upon the noblesse, which, however, they in a great measure contrived to elude.

Next to the nobles, and as a privileged order possessing a secondary kind of nobility of their own, we may mention the parliaments. These were large bodies of men, in different provinces, appointed as courts of law for the administration of justice. In consequence of the corruption of the officers of state, the members purchased their places, which they held for life; but the son was usually preferred when he offered to purchase his father's place. In consequence of this last circumstance, the practising lawyers had little chance of ever becoming judges. Courts thus constituted consisted of a motley mixture of old and young, learned and ignorant, men. Justice was ill administered. The judges allowed their votes in depending causes to be openly solicited by the parties or their friends. No wise man ever entered into a litigation against a member of one of these parliaments; no lawyer would undertake to plead his cause; it never came to a successful issue, and usually never came to any issue at all. After the states-general had fallen into disuse, the parliaments acquired a certain degree of political consequence, and formed the only check upon the absolute power of the crown. The laws, or royal edicts, before being put in force, were always sent to be registered in the books of the parliaments. Taking advantage of this, in favourable times and circumstances, they often delayed or refused to register the royal edicts, and presented remonstrances

against them. This was done under a kind of legal fiction: for they pretended that the obnoxious edict being injurious to the public happiness, could not be the will of the king, but must either be a forgery or an imposition by the ministers. These objections were got the better of, either by a positive order from the king, or by his coming in person and ordering the edict to be registered. The parliaments, however, often carried their opposition very far, even to the ruin of themselves and their families as individuals. This rendered them extremely popular with the nation, and enabled them to embarrass a weak administration. After all, however, the opposition of the parliaments was so feeble, that it was never thought worth while to abolish them entirely till towards the end of the reign of Louis XV. but they were restored as a popular measure at the beginning of the reign of Louis XVI.

The *tiers etat*, or commons, formed the lowest order of the state in France, and they were depressed and miserable in the extreme. To form a conception of their situation, it is necessary to observe that they bore the whole pecuniary burdens of the state: They alone were liable to taxation. An expensive and ambitious court; an army of 200,000 men in time of peace, and of twice that number in war; a considerable marine establishment, public roads and works, were all supported exclusively by the lowest of the people. To add to the evil, the revenues were ill collected. They were let out to farmers-general at a certain sum, over and above which they not only acquired immense fortunes to themselves, but were enabled to advance enormous presents to those favourites or mistresses of the king or the minister, by means of whom they procured their places. To raise all this money from the people, they were guilty of the cruellest oppression, having it in their power to obtain whatever revenue laws they pleased, and executing them in the severest manner. For this last purpose they kept in pay an army of clerks, subalterns, scouts, and spies, amounting to 80,000 men. These men were indeed detested by the king, whom they deceived and kept in poverty; by the people, whom they oppressed; and by the ancient nobility, as purse-proud upstarts. But the court of France could never contrive to manage without them. The peasants could be called out by the intendants of the provinces in what they called *corvées* to work upon the high roads for a certain number of days in the year, which was a source of severe oppression, as the intendant had the choice of the time and place of their employment, and was not bound to accept of any commutation in money. They were moreover subject to the nobles in a thousand ways. The nobles retained all their ancient manorial or patrimonial jurisdictions. The common people being anciently slaves, had obtained their freedom upon different conditions. In many places they and their posterity remained bound to pay a perpetual tribute to their feudal lords. Such tributes formed a considerable part of the revenue of many of the provincial nobles. No man could be an officer of the army, by a late regulation, who did not produce proofs of nobility for four generations. The parliaments, although originally of the *tiers etat*, attempted also to introduce a rule that none but the noblesse should be admitted into their order. In such a situation, it will not be accounted surprising that the common people of France were extremely superstitious

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tious and ignorant. They were, however, passionately devoted to their monarch, and whatever concerned him. In 1754, when Louis XV. was taken ill at Metz, the whole nation was truly in a kind of despair. The courier and his horse that brought the news of his recovery to Paris were both almost suffocated by the embraces of the people.

12
despotic
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We have said that the French monarch was despotic. His power was supported by his army and by a watchful police, having in pay an infinite host of spies and other servants. In France no man was safe. The secrets of private families were searched into. Nothing was unknown to the jealous inquisition of the police. Men were seized by *lettres de cachet* when they least expected it, and their families had no means of discovering their fate. The sentence of a court of law against a nobleman was usually reversed by the minister. No book was published without the licence of a censor-general appointed by the court, and the minister was accountable to none but the king. No account was given of the expenditure of the public money. Enormous gratifications and pensions were given as the reward of the most infamous services. The supreme power of the state was usually lodged with a favourite mistress, and she was sometimes a woman taken from public prostitution. This was not indeed the case under Louis XVI. but it was nevertheless one of the misfortunes of his life that he was far from being absolute in his own family. Still, however, with all its faults, the French court was the most splendid and polished in Europe. It was more the resort of men of talents and literature of every kind, and there they met with more ample protection, than anywhere else. The court was often jealous of their productions, but they met with the most distinguished attention from men of fortune and rank; inasmuch that for a century past the French have given the law to Europe in all questions of taste, of literature, and of every polite accomplishment. The gay elegance that prevailed at court diffused itself through the nation; and amidst much internal misery, gave it to a foreigner the appearance of happiness, or at least of levity and vanity.

Such as it was, this government had stood for ages, and might have continued, had not a concurrence of causes contributed to its overthrow. The inferior orders of clergy, excluded from all chance of preferment, regarded their superiors with jealousy and envy, and were ready to join the laity of their own rank in any popular commotion. The inferior provincial noblesse beheld with contempt and indignation the vices and the power of the courtiers, and the higher nobility wished to diminish the power of the crown. The practising lawyers, almost entirely excluded from the chance of becoming judges, wished eagerly for a change of affairs, not doubting that their talents and professional skill would render them necessary amidst any alterations that could occur. Accordingly, they were the first instruments in producing the revolution, and have been its most active supporters. The monied interest wished eagerly for the downfall of the ancient nobility. As for the great mass of the common people, they were too ignorant, too superstitiously attached to old establishments, and too much depressed, to have any conception of the nature of political liberty, or any hope of obtaining it. We have already stated the leading circum-

stances which led to the French revolution (see FRANCE, n° 184, &c.); but there were other circumstances which contributed in an equal degree both to its commencement and its progress.

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Revolution.

For 40 years the principles of liberty had been disseminated with eagerness in France by some men of great talents, as Rousseau, Helvetius, and Raynal, to whom the celebrated Montesquieu had led the way. Besides these, there was in France a vast multitude of what were called *men of letters*, or persons who gave this account of the manner in which they spent their time. All these were deeply engaged on the side of some kind of political reform. The men of letters in Paris alone are said to have amounted to 20,000. One of the last acts of the administration of the archbishop of Thoulouse was, on the 5th July 1788, to publish a resolution of the king in council, inviting all his subjects to give him their advice with regard to the state of affairs. This was considered as a concession of an unlimited liberty of the press; and it is scarcely possible to form an idea of the infinite variety of political publications which from that period diffused among the people a dissatisfaction with the order of things in which they had hitherto lived.

The established religion of France had for some time past been gradually undermined. It had been solemnly assaulted by philosophers in various elaborate performances; and men of wit, among whom Voltaire took the lead, had attacked it with the dangerous weapon of ridicule. The Roman Catholic religion is much exposed in this respect, in consequence of the multitude of false miracles and legendary tales with which its history abounds. Without discriminating betwixt the respectable principles on which it rests, and the superstitious follies by which they had been defaced, the French nation learned to laugh at the whole, and rejected instead of reforming the religion of their fathers. Thus the first order in the state had already begun to be regarded as useless, and the minds of men were prepared for important changes.

The immense population of the city of Paris, amounting to upwards of 800,000 souls, rendered it an important engine in the hands of the conductors of the revolution. An overgrown capital has always proved dangerous to a government that is or attempts to be despotic, as appears from the history of ancient Babylon and Rome, as well as of modern Constantinople, of London under Charles I. and Paris under several of its kings.

We cannot here avoid mentioning a physical event, which assisted not a little in producing many of the convulsions attending the revolution; a general scarcity of grain, which occurred about that period. On Sunday the 13th of July 1788, about nine in the morning, without any eclipse, a dreadful darkness suddenly overspread several parts of France. It was the prelude of such a tempest as is unexampled in the temperate climates of Europe. Wind, rain, hail, and thunder, seemed to contend in impetuosity; but the hail was the great instrument of ruin. Instead of the rich prospects of an early autumn, the face of nature in the space of an hour presented the dreary aspect of universal winter. The soil was converted into a morass, the standing corn beaten into the quagmire, the vines broken to pieces, the fruit trees demolished, and unmelted hail lying in heaps like rocks of solid ice. Even the robust

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forest trees were unable to withstand the fury of the tempest. The hail was composed of enormous, solid, and angular pieces of ice, some of them weighing from eight to ten ounces. The country people, beaten down in the fields on their way to church, amidst this confusion of the elements, concluded that the last day was arrived; and scarcely attempting to extricate themselves, lay despairing and half suffocated amidst the water and the mud, expecting the immediate dissolution of all things. The storm was irregular in its devastations. While several rich districts were laid entirely waste, some intermediate portions of country were comparatively little injured. One of 60 square leagues had not a single ear of corn or a fruit of any kind left. Of the 66 parishes in the district of Pontoise, 43 were entirely desolated, and of the remaining 23 some lost two-thirds and others half their harvest. The isle of France, being the district in which Paris is situated, and the Orleanois, appear to have suffered chiefly. The damage there, upon a moderate estimate, amounted to 80,000,000 of livres, or between three and four millions Sterling. Such a calamity must at any period have been severely felt; but occurring on the eve of a great political revolution, and amidst a general scarcity throughout Europe, it was peculiarly unfortunate, and gave more embarrassment to the government than perhaps any other event whatever. Numbers of families found it necessary to contract their mode of living for a time, and to dismiss their servants, who were thus left destitute of bread. Added to the public discontent and political dissensions, it produced such an effect upon the people in general, that the nation seemed to have changed its character; and instead of that levity by which it had ever been distinguished, a settled gloom now seemed fixed on every countenance.

15
Attempt to
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The spring of the year 1789 was a period of much political anxiety in France. The superior orders wished to reduce the power of the crown, but were jealous of their own privileges, and determined to retain them; while the popular philosophers and others were endeavouring to render them odious, and to rouse the people to a love of freedom. Still, however, the great body of the common people remained careless spectators of the struggle and unconscious of the approaching commotion. Such was their indifference, that few of them took the trouble even to attend and vote at the elections of the deputies to the states-general. In many places, where a thousand voters were expected, not fifty came forward; but such of them as did appear showed that a seed was sown which might one day rise into important fruits. In the instructions which they gave to their deputies, the British constitution was in general the model of what they wished their government to be. They demanded equal taxation, the abolition of *lettres de cachet* or arbitrary imprisonment, the responsibility of ministers, and the extinction of the feudal privileges of the nobles; but they wished that the whole three orders of the state should sit and vote in one house, well knowing that their nobility were not prepared to act the moderate part of a British house of lords. The nobles, on the contrary, although willing to renounce some of their pecuniary privileges, and to sacrifice the power of the crown, were most decisively resolved neither to surrender their feudal prerogatives nor the right of sitting in three separate assemblies; by means of which

each of the orders could easily resist the encroachments of the other two. Mr Neckar has been improperly censured for not deciding this last important question previous to the meeting of the states-general: but it must be observed, that the very purpose of calling that assembly was to overturn the unjust privileges of the higher orders through its medium, and without any direct interposition on the part of the ministers. Had the king positively decided in favour of three chambers, the nobles and the clergy would have retained all those ancient abuses established in their own favour, of which it was his wish to deprive them, and the crown and its prerogatives would have been the only objects of sacrifice. It was therefore thought safer to leave the *tiers etat* to fight its own battle: nor was it yet imagined that the commons of France, depressed and poor, and dispersed by situation over a multitude of provinces, could ever unite in enterprises dangerous to the sovereign.

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16
The states had been summoned to meet at Versailles States sum-
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on the 27th of April, and most of the deputies arrived at that time; but the elections for the city of Paris not being concluded, the king deferred the commencement of their sessions till the 4th of May. During this period, the members, left in idleness, began to find out and form acquaintance with each other. Among others, a few members from Brittany (*Bretagne*) formed themselves into a club, into which they gradually admitted many other deputies that were found to be zealous for the popular cause, and also many persons who were not deputies. This society, thus originally established at Versailles, was called the *Comité Breton*; and was one day destined, under the appellation of the *Jacobin Club*, to give laws to France, and to diffuse terror and alarm throughout Europe. On the other side, the aristocratic party established conferences at the house of Madame Polignac, for the purpose, it is said, of uniting the nobles and the clergy.

17
An event occurred at this time which all parties ascribed to some malicious motive. In the populous suburb of St Antoine, a M. Reveillon carried on a great paper manufactory. A false report was spread that he intended to lower the wages of his workmen, and that he had declared bread was too good for them, and that they might subsist very well on potato-flour. A commotion was raised, he was burnt in effigy, and his house was thereafter burnt and pillaged by the mob, who were not dispersed till the military had been called in, and much carnage ensued. The popular party asserted that the commotion had been artfully excited by the party of the queen and the Count D'Artois, to afford a pretence for bringing great bodies of the military to the neighbourhood to overawe the states-general, or induce the king more decisively to resolve on assembling that body at Versailles, in preference to Paris, where they and the popular minister M. Neckar wished it to be held.

18
On the 4th of May the states-general assembled at Versailles. They commenced business by going in a General solemn procession, preceded by the clergy, and followed by the king, according to ancient custom, to church, to perform an act of devotion. The nobles were arrayed in a splendid robe, and they and the higher clergy glittered in gold and jewels. The commons appeared in black, the dress belonging to the law. The assembly

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Versailles

French Revolution, 1789. assembly was thereafter opened by a short speech from the throne, in which the king congratulated himself upon thus meeting his people assembled; alluded to the national debt, and the taxes, which were severely felt because unequally levied; he took notice of the general discontent and spirit of innovation which prevailed, but declared his confidence in the wisdom of the assembly for remedying every evil. "May an happy union (added he) reign in this assembly; and may this epocha become ever memorable for the happiness and prosperity of the country. It is the wish of my heart; it is the most ardent desire of my prayers; it is, in short, the price which I expect from the sincerity of my intentions and my love for my people."

M. Barrelin, the keeper of the seals, next addressed the assembly in a congratulatory and uninteresting speech. He was followed by the popular minister M. Neckar, who spoke for three hours. Though much applauded on account of the clear financial details which his speech contained, he encountered a certain degree of censure from all parties, on account of the cautious ambiguity which he observed with regard to the future proceedings of the states-general.

19 their deputies and activity. Next day the three orders assembled separately. The deputies of the *tiers etat* amounted to 600 in number, and those of the nobles and clergy to 300 each. During their first sittings much time was spent in unimportant debates about trifling points of form; but the first important question, that necessarily became the subject of their discussion, was the *verification of their powers*, or production of the commissions of the members, and investigation of their authenticity. The commons (*tiers etat*) laid hold of this as a pretext for opening the grand controversy, whether the states-general should sit in one or in three separate chambers? They sent a deputation inviting the nobles and the clergy to meet along with them in the common hall for the purpose of *verifying their powers* in one common assembly. In the chamber of the clergy 114 members voted for the performance of this ceremony in the general assembly; and 133 against it. But in the more haughty order of the nobles, the resolution for the verification in their own assembly was carried by a majority of 188 against 47. The commons paid no regard to this. They were conducted by bold and skilful leaders, who discerned the importance of the point in contest, and resolved not to abandon it. Aware of the exigencies of the state, they knew that the crown was nearly verging upon bankruptcy; and that such were the deficiencies of the revenue that only a short delay was necessary to accomplish the absolute dissolution of the government. They suffered five weeks to pass away therefore in total inactivity. During this period proposals were made on the part of the ministry for a pacification between the three orders, and conferences were opened by commissioners from each. But no art could seduce the commons from their original purpose, or prevail with them to enter upon the business of the state.

20 popularity the *Etats*, common. The nation had expected much from the assembling of the states-general, and learnt the news of their inaction with no small degree of concern. The *tiers etat* was naturally popular, and the public censure could not readily devolve upon that favourite order. Moreover, from the first period of their assembling the commons made every effort to augment their own natural popu-

larity. They admitted all persons promiscuously into the galleries, and even into the body of their hall. No restraint was attempted to be laid upon the most vehement marks of popular applause or censure. Lists of the voters names were publicly taken and sent to Paris upon every remarkable occasion; and the members suddenly found themselves become, according to their political sentiments, the objects of general execration or applause. The new and bold notions of liberty that were daily advanced by the leaders of the *tiers etat* were received with acclamation by their hearers. The capital became interested in the issue of every debate; and the political fervor was eagerly imbibed by the nation with that vivacity which is so peculiar to the French. The commons accused the nobles of obstinately impeding the business of the state, by refusing to verify their powers in one common assembly. The accusation was swallowed by the multitude, who saw not, or were unwilling to see, that the attack was made by their own favourite order. In the mean time the nobles became rapidly more and more unpopular. Their persons were insulted, new publications daily came forth, and were greedily bought up, which reviled their whole order, and represented them as an useless or pernicious body of men, whose existence ought not to be tolerated in a free state. Whoever adhered to them was branded with the odious appellation of *Aristocrate*. The clergy, from the influence of the parish *curés* or parsons, seemed ready to desert their cause. They were even opposed by a minority of their own body, which derived lustre from having at its head the duke of Orleans, the first prince of the blood. Still, however, the majority of the nobles remained firm; well aware, that if they once consented to sit in the same assembly, and to vote promiscuously, with the ambitious and more numerous body of the commons, their whole order, and all its splendid privileges, must speedily be overthrown.

21 Taking advantage of this popularity, they seized the legislative authority; The leaders of the commons saw the change that was taking place in the minds of men; and they at length regarded the period as arrived when they ought to emerge from their inactivity, and execute the daring project of seizing the legislative authority in their country. They declared that the representatives of the nobles and the clergy were only the deputies of particular incorporations whom they would allow to sit and vote along with themselves; but who had no title in a collective capacity to act as the legislators of France. For conducting business with more facility, they appointed 20 committees. In consequence of a proposal by the Abbé Sieyes, a final message was sent to the privileged orders requiring their attendance as individuals, and intimating that the commons, as the deputies of 96 out of every hundred of their countrymen, were about to assume the exclusive power of legislation. None of the nobles obeyed this summons; but three *curés*, Messrs Cefve, Ballard, and Jalot, presented their commissions, and were received with loud acclamations. They were next day followed by five more, among whom were Messrs Gregoire, Dillon, and Bodineau. After some debate concerning the appellation which they ought to assume, the commons, with such of the clergy as had joined them, solemnly voted themselves the sovereign legislators of their country under the name of the *National Assembly*. The result of the vote was no sooner declared, than the hall resounded

French
Revolution,
1789.

22
And assert
their own
sovereign-
ty.

23
Majority of
the clergy
unite with
them.

24
Fears of the
nobles.

25
Royal ses-
sion pro-
claimed.

26
The Assem-
bly meets
in the
church of
St Louis.

with shouts from the immense concourse of spectators of "Vive le Roi et vive l'assemblée nationale," *Long live the king and the national assembly.* M. Bailly was chosen president for four days only, Messrs Camus and Pison de Galand secretaries, and the assembly proceeded to business.

Its first acts were decisively expressive of its own sovereignty. All taxes imposed without the consent of the representatives of the people were declared to be null and void; but a temporary sanction was given to the present taxes, although illegal, till the dissolution of the assembly and no longer. It was added, that "as soon as, in concert with his majesty, the assembly should be able to fix the principles of national regeneration, it would take into consideration the *national debt*, placing from the present moment the creditors of the state under the safeguard and honour of the French nation."

The popular cause now gained ground so fast, that on the 19th of June a majority of the clergy voted for the verification of their powers in common with the national assembly, and they resolved to unite with them on the following day.

Affairs were now come to a crisis, and the nobles perceived that they must instantly make a decisive stand, or yield up their cause as finally lost. Such was their alarm, that M. d'Espreménil proposed, at one of the sittings of their order, to address the king, intreating him to dissolve the states-general. Hitherto that prince had gone along with M. Neckar in favouring the popular cause in opposition to the aristocracy. But every art was now used to alarm his mind upon the subject of the late assumptions of power on the part of the commons, and these arts were at length successful. Repeated counsels were held; M. Neckar was absent attending a dying sister, and the king was prevailed upon to act agreeably to the advice of the leaders of the nobles. But the first measure which they adopted was so ill conducted as to afford little prospect of final success to their cause. On the 20th of June, when the president and members were about to enter as usual into their own hall, they found it unexpectedly surrounded by a detachment of the guards, who refused them admission, while the heralds at the same time proclaimed a royal session. Alarmed by this unforeseen event, the meaning of which they knew not, but apprehending that an immediate dissolution of the assembly was designed, they instantly retired to a neighbouring tennis-court, where, in the vehemence of their enthusiasm, they took a solemn oath "never to separate till the constitution of their country should be completed."

On the 22d a new proclamation intimated that the royal session, was deferred till the following day. It was now found that the assembly had been excluded from their hall merely because the workmen were occupied in preparing it for the intended solemnity. This information was ill calculated to excite favourable expectations of the measures about to be adopted at a royal session, ushered in by such circumstances of marked disrespect for the representatives of the people. The assembly, after wandering about in search of a place of meeting, at length entered the church of St Louis, and were immediately joined by the majority of the clergy, with their president, the archbishop of Vienne, at their head. Two nobles of Dauphiné, the marquis de Blagon and the count d'Agoult, presented their com-

missions at the same time. Encouraged by these events, and by the applauses of surrounding multitudes, the assembly now expected with firmness the measures about to be adopted.

The royal session was held in the most splendid form, but altogether in the style of the ancient despotism. Soldiers surrounded the hall. The two superior orders were seated, while the representatives of the people, left standing a full hour in the rain, were in no humour, when at last admitted, to receive with much complacency the commands of their sovereign. The king read a discourse, in which he declared null and void the resolutions of the 17th, but at the same time presented the plan of a constitution for France. It contained many good and patriotic principles, but preserved the distinction of orders, and the exercise of *lettres de cachet*; it said nothing about any active share in the legislative power to be possessed by the states-general, and was silent both about the responsibility of ministers and the liberty of the press. The king concluded by commanding the deputies immediately to retire, and to assemble again on the following day. He then withdrew, and was followed by all the nobles and a part of the clergy. The commons remained in gloomy silence on their seats. It was interrupted by the grand master of the ceremonies, who reminded the president of the intentions of the king. Instantly the vehement count de Mirabeau, starting from his seat, exclaimed with indignation, "The commons of France have determined to debate. We have heard the intentions that have been suggested to the king; and you, who cannot be his agent with the states-general, you who have here neither seat nor voice, nor a right to speak, are not the person to remind us of his speech. Go tell your master, that we are here by the power of the people, and that nothing shall expel us but the bayonet." The applause of the assembly seconded the enthusiasm of the orator, and the master of the ceremonies withdrew in silence.

M. Camus then rose; and in a violent speech indignantly stigmatised the royal session by the obnoxious appellation of a *bed of justice*; he concluded by moving that the assembly should declare their unqualified adherence to their former decrees. This motion was followed by another, pronouncing the persons of the deputies inviolable. Both were supported by Messrs Pétion, Barnave, Glazen, the Abbés Gregoire, Sieyès, and many others, and were unanimously decreed. The assembly therefore continued their sittings in the usual form. On the following day the majority of the clergy attended as members; and on the 25th the duke of Orleans, along with 49 of the deputies belonging to the order of nobles, joined them also. The remaining nobles, as well as the small minority of the clergy, now found themselves awkwardly situated. Whether on this account, or because their leaders had by this time formed a plan for carrying their point not by peaceable means but by the aid of a military force, the king, on the 27th, invited by a pressing letter both orders to join the commons. This request was immediately complied with, although many of the nobility disapproved of the measure.

The situation of France was now become truly alarming. When the king retired from the assembly after the royal session, he was followed by more than 6000 citizens,

French
Revolution
1789.

27
Discourse
the king

28
by the
commons

29
Debate
the
king's de-
parture.

30
Alarm
situation
France
this peo-

citizens, from whom loud clamours and every mark of disapprobation broke forth. All Versailles was speedily in an uproar. M. Neckar had repeatedly solicited his dismissal, and the report of this had increased the popular clamour. The court was in consternation. The king probably discovered, with no great satisfaction, that his minister was more popular than himself. At six o'clock in the evening the queen sent for M. Neckar. When he returned from the palace, he assured the crowd that waited for him that he would not abandon them; upon which they retired satisfied. At the same time the news of the royal session had thrown the city of Paris into violent agitation. The peace of that capital was at this time endangered by a variety of causes. A dreadful famine raged through the land, which in a great city is usually most severely felt. This prepared the minds of men for receiving unfavourable impressions of their political state. Every effort was moreover made to disorganize the government, and produce a dislike to the ancient order of things. The press poured forth innumerable publications, filled with new and seducing, though generally impracticable, theories of liberty. These were distributed *gratis* among the bulk of the people of Paris, and dispersed in the same manner through the provinces. Philip duke of Orleans (presumptive heir to the crown failing the children and brothers of the king) is with good reason believed to have supplied this expence out of his more than royal revenues. In the gardens of the Palais Royale at Paris, which belonged to him, an immense multitude was daily assembled, listening from morning to night to orators who descanted upon the most violent subjects of popular politics. Many of these orators were suspected to be in his pay. It was even believed that his money found its way into the pockets of some of the most distinguished leaders in the national assembly.

But the government was, if possible, still more dangerously assaulted by the methods now generally used to seduce the military. Every officer of the French army belonged to the order of the nobles; and from that quarter, therefore, it might have been imagined that there was little danger. But this very circumstance became the means of disorganizing that great engine of despotism. As the soldiers could not avoid imbibing some of the new opinions, their own officers became the first objects of their jealousy; especially in consequence of that impolitic edict of Louis XVI. which required every officer to produce proofs of four degrees of nobility; and thus insulted, by avowedly excluding the private men from promotion. Perhaps with a view to what might happen, the instructions to the deputies of the *tiers etat* had recommended an increase of the pay of the soldiers. And now at Paris every art was used to gain them to the popular cause. They were conducted to the Palais Royal, and were there caressed and flattered by the populace, while they listened to the popular harangues. These arts were successful. On the 23d of June they first refused to fire on the mob in a riot. Some of them were on the 30th reported to be

in confinement for this offence; a crowd instantly collected, and rescued them, the dragoons that were brought to suppress the tumult grounding their arms: a deputation of the citizens solicited of the assembly the pardon of the prisoners. The assembly applied to the king, who pardoned them accordingly.

All these events, together with the tumultuous state of the capital, which was daily increasing, made it necessary for the king to call out the military force to restore, if possible, the public peace. That his intentions were pure, the then state of affairs will permit no man but a democrat to doubt; but the aristocracy, with the Count d'Artois at their head, were bringing forward other measures, which ultimately contributed to the ruin of themselves, the king, and the kingdom. Crowds of soldiers were collected from all parts of the kingdom around Paris and Versailles. It was observed, that these consisted chiefly of foreign mercenaries. Camps were traced out. Marshal Broglio, a tried veteran, was sent for and placed at the head of the army. The king was supposed to have entirely yielded to new counsels, and every thing bore the appearance of a desperate effort to restore the energy of the ancient government. This is the most important period of the French revolution; yet the specific designs of the leading actors have never been clearly understood. It was rumoured at the time, that Paris was to be subdued by a siege and bombardment; that the assembly was to be dissolved, and its leaders put to death. These are incredible exaggerations; but the crisis of French liberty was universally regarded as at hand, and also the existence of the national assembly as an independent body; or at least upon any other footing than that proposed by the king on the 23d of June.

An able and eloquent address to the king against the assembling of foreign troops in their neighbourhood was brought forward by Mirabeau, and voted by the assembly. The king properly replied, that the state of the capital was the cause of assembling the troops, and which is offered to transfer the states-general to Noyons or Soissons. "We will neither remove (exclaimed Mirabeau) to Noyons nor to Soissons; we will not place ourselves between two hostile armies, that which is besieging Paris and that which may fall upon us from Flanders or Alface; we have not asked permission to run away from the troops; we have desired that the troops should be removed from the capital."

Thirty-five thousand men were now stationed in the neighbourhood of Paris and Versailles. The posts were occupied which commanded the city, and camps were marked out for a greater force. The Count d'Artois and his party regarded their plans as ripe for execution; and M. Neckar received a letter from the king, requiring him to quit the kingdom in 24 hours. That popular (A) minister took the route of Brussels on the following day, when his departure was made public. In his dismissal the popular, or as it was now called the *democratic*, party thought they saw the resolution adopted to accomplish their ruin. The assembly again addressed the throne; they requested anew the removal of king;

(A) Popular he certainly was; but he either had not fortitude and talents to execute his own plans, or acted a base part to his amiable master. From baseness we acquit him.

French
Revolution,
1789.

35
And are
again re-
futed.

35
Decree of
the assem-
bly in con-
sequence.

36
Consterna-
tion in Pa-
ris on Nec-
kar's re-
treat.

37
Crue ty of
the Prince
De Lam-
besq.

38
Terror in
the city
universal.

of the troops, offering to be responsible for the public peace, and to proceed in a body to Paris to encounter personally every danger that might occur. But they were coolly told, that the king was the best judge of the mode of employing the troops, and that the presence of the assembly was necessary at Versailles. From a sovereign who doubtless recollected the proceedings of the long parliament of England, a different reply could not in reason be expected. On receiving it, however, it was instantly decreed, on the motion of the marquis de la Fayette, that the late ministry had *carried with them* the confidence of the assembly; that the troops *ought* to be removed; that the ministry are and shall be responsible to the people for their conduct; that the assembly persisted in all its former decrees; and that as it had taken the public debt under the protection of the nation, no power in France was entitled to pronounce the infamous word *bankruptcy*.

The city of Paris was thrown into deep consternation by the news of M. Neckar's retreat. His bust and that of the Duke d'Orleans were dressed in mourning, and carried through the streets. The royal Allemand, a German regiment, broke in pieces the busts, and dispersed the populace. The prince De Lambesq, grand ecuyer of France, was ordered to advance with his regiment of cavalry, and take post at the Thuilleries. Being a man of a violent temper, and enraged by the appearances of disapprobation which were visible around him, he furiously cut down with his sword a poor old man who was walking peaceably in the gardens. The consequences of this act of inhumanity were such as might have been expected; a shout of execration instantly arose; the cry *to arms* was heard; the military were assaulted on all sides; the French guards joined their countrymen, and compelled the Germans, overpowered by numbers, and unsupported by the rest of the army, to retire.

All order was now at an end, and as night approached an universal terror diffused itself through the city. Bands of robbers were collecting; and from them or from the foreign soldiery a general pillage was expected. The night passed away in consternation and tumult. It was found in the morning that the hospital of St Lazare was already plundered. The alarm bells were rung; the citizens assembled at the Hotel de Ville, and adopted a proposal that was there made, of enrolling themselves as a militia for general defence, under the appellation of the *national guard*. This day and the succeeding night were spent in tolerable quietness, without any attempt on the part of the army. On the morning of the memorable 14th of July, it was discovered that the troops encamped in the Champs Elisees had moved off, and an immediate assault was expected. The national guard now amounted to 150,000 men; but they were in general destitute of arms. They had assumed a green cockade; but on recollecting that this was the livery of the Count d'Artois, they adopted one of red, blue, and white. M. de la Salle was named commander in chief, officers were chosen, and detachments sent around in quest of arms. In the Hotel des Invalides upwards of 30,000 stand of arms were found, along with 20 pieces of cannon; a variety of weapons was also procured from the *garde meuble de la couronne*, and from the shops of armourers, cutlers, &c.

The celebrated fortress of the Bastille was an object

of much jealousy to the Parisians. At 11 o'clock in the morning, M. de la Rosiere, at the head of a numerous deputation, waited upon M. de Launay the governor, who promised, along with the officers of his garrison, that they would not fire upon the city unless they should be attacked. But a report was soon spread through Paris, that M. de Launay had, in a short time thereafter, admitted into the fortress a multitude of persons, and then treacherously massacred them. The cause of this piece of perfidy has never been explained. The fact itself has been denied; but it was attested at the time by the duke of Dorset, the British ambassador at the court of France. The effect of the report was, that a sudden resolution was adopted of assaulting the Bastille; an immense and furious multitude rushed into its outer, and soon forced their way into its inner, courts, where they received and returned a severe fire for the space of an hour. The French guards, who were now embodied into the national guard, conducted the attack with skill and coolness: they dragged three waggons loaded with straw to the foot of the walls, and there set them on fire; the smoke of these broke the aim of the garrison, while it gave no disturbance to the more distant assailants. The besieging multitude pressed the attack with incredible obstinacy and vigour for the space of four hours; the garrison was in confusion; the officers served the cannon in person, and fired their muskets in the ranks; the governor, in despair, thrice attempted to blow up the fortress. A capitulation, when at last fought, was refused to the garrison, and an unconditional surrender took place. The governor, and M. de Losme Salbrai his major, a gentleman of distinguished humanity and honour, became victims of popular fury in spite of every effort that could be made for their protection; but the French guards succeeded in procuring the safety of the garrison. Only seven prisoners were found in the Bastille. A guard was placed in it, and the keys were sent to the celebrated M. Brissot de Warville, who a few years before had inhabited one of its caverns.

The remaining part of this eventful day was spent at Paris in a mixture of triumph and alarm. In the pocket of the governor of the Bastille a letter was found, encouraging him to resistance by the promise of speedy succours, written by M. de Flelles, the prevot de marchands, or chief city magistrate, who had pretended to be a most zealous patriot. This piece of treachery was punished by instant death; and his bloody head was carried through the city on a pole, along with that of M. de Launay. At the approach of night a body of troops advanced towards the city, at the Barriere d'Enfer. The new national guard hurried thither, preceded by a train of artillery, and the troops withdrew upon the first fire: barricadoes were everywhere formed, the alarm-bells were rung, and a general illumination continued during the whole of this night of confusion.

In the mean time, it was obvious that the new ministry were entering upon a difficult scene of action, where one false step might lead to ruin, and where their own plan of conduct ought to be maturely digested. Marshall Broglio was made minister of war, the baron de Breteuil president of finance, M. de la Galeziere comptroller-general, M. de la Porte intendant of the war department, and M. Foulon intendant of the navy;

navy; but these were only meant to act as official men, under the Count d'Artois, and the other leaders of the aristocracy. To these leaders there did not even remain a choice of difficulties; no resource was left but that of overawing by military power the national assembly and the capital, and of risking the desperate measure of a national bankruptcy, which the court had not formerly dared to encounter, and to avoid which it had convoked the states-general. No trace remains, however, of any attempt to put this criminal, but last resource, in execution. The evening after the departure of M. Neckar was spent by the court of Versailles in feasting and joy, as if a victory had been gained. The courtiers of both sexes went round among the soldiery, striving to secure their fidelity by caresses, largesses, and every species of flattering attention. The ministry not only failed to support the Prince de Lambek in the post which he had been sent to occupy, but they suffered the whole of the 13th to pass in indecision, while the capital was in a state of rebellion, while an army was formally mustering within its walls, and the names of the principal nobility were put up in lists of proscriptions. They received the news of the capture of the Bastille with confusion and dismay, which were increased, if possible, by information given by Marshal Broglie, that the troops refused to act against Paris or the national assembly. In this perplexity they adopted the miserable device of concealing from the king the state of public affairs; and that unfortunate prince was thus perhaps the only person out of millions around him who remained ignorant of the convulsions in which his country was involved.

At length, at midnight, the Duke de Liancourt forced his way into the king's apartment, and told him of the revolt of his capital, of his army, and of the surrender of the fortrefs of the Bastille. The Count d'Artois, who was present, still attempted to retain the monarch under his fatal delusion; but the Duke de Liancourt turning round, exclaimed, "As for you, Sir, your life can only be saved by instant flight; I have seen with horror your name in the bloody list of the proscribed." Accordingly the Count, with the members of his short-lived administration and their adherents, fled to the frontiers. And thus an emigration commenced, the source of that terrible contest which has covered Europe with bloodshed and mourning. This ministry had, no doubt, many difficulties to contend against; but an accurate attention to their conduct excites a suspicion which, while it exculpates them from many intended crimes that have been laid to their charge, at the same time does little honour to their talents. It is this, that they had come into office without having formed any clear plan of conduct; that they were men acting without decision and at random, and consequently became the sport of those events which they wanted skill and vigour to direct or controul. By their introduction into office, and their misconduct while in it, the royal authority fell prostrate before the popular party in the national assembly. The nobles and the clergy still remained, but confounded in one assembly with the more numerous order of the *tiers etat*; and no longer rallying round a throne that was too feeble to afford protection, they soon yielded to that fierce and levelling spirit of democracy that now rose around them.

But the person of the monarch was still beloved.—^{French Revolution, 1789} Early next morning the king went to the assembly, but with none of the usual solemnities. He "regretted the commotions of the capital, disavowed any knowledge of an intention against the persons of the deputies, and intimated that he had commanded the removal of the troops." ⁴³ A deep and expressive silence prevailed for a few moments; this was succeeded by vehement and universal shouts of applause. The king arose to depart, and instantly the whole assembly crowded around, and attended him to his palace. The queen appeared at a balcony with the dauphin in her arms; the music played the pathetic air of *Où peut-on être mieux qu'au sein de sa famille*. The enthusiasm of loyalty communicated itself to the surrounding multitudes, and nothing was heard but acclamations of joy.

On the following day, the king declared his resolution to visit the city of Paris in person. Accordingly ⁴⁴ that prince, who never wanted personal courage, however deficient he might be in political steadfastness, set out, attended by some members of the assembly and by the militia of Versailles. He was met by the celebrated M. de la Fayette, at the head of a body of the national guard, of which he had now been chosen commander in chief. M. Bailly, in whose person the ancient office of mayor of Paris had been revived, received the king at the gates, and delivered to him the keys. All this while no shout was heard from the crowd of innumerable spectators but that of *Vive la nation*. The king advanced to the Hotel de Ville, where the new cockade was presented to him, which he put on, and presented himself with it at a window. At the sight of this badge of patriotism an universal shout of *Vive le Roi* burst forth from every quarter; and he returned to Versailles amidst general triumph and applause.

Much confusion still prevailed in the capital; but ⁴⁵ there was more appearance of regularity than could have been expected at the conclusion of such important events. This arose from a casual concurrence of circumstances. To conduct with ease the elections to the states-general, Paris had been divided into 60 districts, each of which had a separate place of meeting. The people did not elect the members to the states-general; but they chose delegates, who, under the name of electors, voted for the members. At the commencement of the disturbances, the electors, at the request of their fellow-citizens, assumed a temporary authority; of which, however, they were soon weary, and as soon as possible procured the public election of 120 persons as municipal officers for the government of the city. The citizens having got the habit of assembling in their districts, grew fond of it: they assembled frequently, made rules for their own government, and sent commissioners to communicate with other districts. The tumultuous nature of these meetings, and the vehemence of debate which prevailed in them, will best be conceived from the ludicrous contrivance of one of their presidents, who stationed a drummer at the back of his chair, and when the confusion and noise became altogether ungovernable, gave the signal for beating the drum, which speedily overpowered every other noise. These meetings, however, gradually ripened into clubs, in which much dexterity and intrigue were exerted.

The whole of the late ministry escaped excepting M. Foulon.

French Revolution, 1789. Foulon. His character, it may well be imagined, was extremely unpopular; for he is said to have asserted, that he would "make the people of Paris eat hay."

46 He had retired to the country, but was seized by his own vassals, and brought to Paris with a bundle of hay tied to his back. In spite of every effort made by M. M. Bailly and Fayette to procure him a fair trial at least, he was carried to the *Place de Grève*, and hanged at a lamp-iron by the enraged multitude. His son-in-law M. Berthier, attempting to defend himself against a similar fate, fell, covered with wounds. Their heads were carried round on poles; and thus the populace became habituated to the sight of blood and murder: they were even taught by popular songs to glory in such actions, and particularly by the well known song *Ca-ira*.

47 M. Neckar returns, and the immediate consequences of it. In consequence of an invitation from the king, M. Neckar returned to France. He was received by the assembly with great applause, and in Paris with infinite solemnity and triumph. He here, however, committed a political error that made some noise. In deploring the late excesses and murders, and taking notice of the arrest of M. Bezenval, an officer of the Swiss guards, he requested of the electors at the Hotel de Ville, in a solemn harangue, that the past should be forgotten; that proscriptions should cease, and a general amnesty be proclaimed. In a moment of enthusiasm this was agreed to, and the electors decreed what unquestionably exceeded their powers. The districts of Paris were instantly in commotion; the electors alarmed, declared that they only meant that "henceforth the people would punish no man but according to law;" and, at the same time, to prove that they themselves were free from ambition, they formally renounced all their own powers. The assembly took up the question. Mess. Lally, Tolendal, Mounier, Clermont, Tonnerre, Garat junior, and others, declared that no person ought to be arrested without a formal accusation. While Mess. Mirabeau, Robespierre, Barnave, and Gleizen, alleged, on the contrary, that the people were entitled to lay hold of any man who had publicly appeared at the head of their enemies. The debate ended, by admitting the explanation of the electors, and by a declaration that it was the duty of the assembly to see justice executed in all cases.

48 The commotions, &c. of the capital reach to the provinces. The commotions and enthusiasm of the capital were speedily communicated to the provinces. In every quarter the people seized upon all the arms that could be found, and the military uniformly refused to act against them. Many acts of outrage were committed in Brittany, at Strasbourg, in the Linnnois, and elsewhere, in which the nobility were the sufferers. The mischiefs that occurred were usually magnified at a distance; but that very circumstance was an additional evil. For example: It was stated in the National Assembly that M. de Mesmay, lord of Quincey, invited a number of patriots, among whom were the officers of a neighbouring garrison, to a splendid entertainment at his house, to celebrate the happy union of the three orders: That in the midst of the feast the master of the house contrived to withdraw unnoticed, and to set fire to a train previously laid, which communicated with a quantity of gunpowder in the cellars, in consequence of which the whole company, by a sudden explosion, were blown into the air. It was found on inquiry,

that there was not one word of truth in the whole story. But before this inquiry could be made, all France had resounded with accounts of the pretended bloody tragedy; and the whole nobility of the kingdom suffered in a less or greater degree, from the prejudices excited by this unhappy report, the origin of which has never been well explained. It would be vain to state all the idle rumours to which at this time the blind credulity of the multitude gave currency. At one time, the Aristocrats were cutting down the green corn, at another time they were burying flour in common sewers, or casting loaves into the Seine. One report was no sooner proved to be false than another arose, and the whole nation was agitated by suspicion and alarm. The National Assembly were engaged in framing their celebrated declaration of the rights of man, which was to form the basis of the new constitution, when the alarming accounts, received from all quarters, of the state of anarchy into which the kingdom was falling, obliged them suddenly to turn their attention to objects of practical necessity. The privileged orders found themselves become the objects of universal jealousy and hatred; and that something must instantly be done to save their families and property, which were menaced on every side with persecution and pillage. Regarding the popular torrent as now become irresistible, to save something they resolved to sacrifice a part.

49 On the afternoon sitting of the 4th of August, the Viscount de Noailles, seconded by the Duke d'Aguillon, opened one of the most important scenes in the French Revolution, or in the history of any country. These noblemen stated, that the true cause of the commotions which convulsed the kingdom existed in the misery of the people, who groaned under the double oppression of public contributions and of feudal services. "For three months (said M. de Noailles) the people have beheld us engaged in verbal disputes, while their own attention and their wishes are directed only to things. What is the consequence? They are armed to reclaim their rights, and they see no prospect of obtaining them but by force." He therefore proposed to do justice as the shortest way of restoring tranquillity, and for that purpose to decree, that henceforth every tax should be imposed in proportion to the wealth of the contributors, and that no order of the state should be exempted from the payment of public burdens; that feudal claims should be redeemed at a fair valuation; but that such claims as consisted of personal services on the part of the vassal should be abolished without compensation, as contrary to the imprescriptible rights of man. The extensive possessions of the noblemen who made these proposals added much lustre to the disinterested sacrifice which they offered. Their speeches were received with the most enthusiastic applauses by the Assembly and the galleries, and their proposals were decreed by acclamation without a vote. No nation is so much led by the influence of sudden emotions as the French. The patriotic contagion now spread fast through every breast, and a contest of generosity ensued. The hereditary jurisdictions possessed by the nobles within their own territories were next sacrificed. All places and pensions granted by the Court were suppressed, unless granted as the reward of merit or of actual services. The game laws, which condemned the husbandman, under severe penalties, to leave his property

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49 Viscount de Noailles, and Duke d'Aguillon, propose that

50 The taxes should be in proportion to the wealth of the contributors.

51 The game laws, &c. abolished.

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revolution,
1789.

52
Many an-
cient privi-
leges are
voluntarily
surrendered.

53
Tithes and
revenues of
the clergy
taken away.

54
A new mi-
nistry ap-
pointed.

ty a prey to infinite multitudes of animals reserved for pastime, had always been numbered among the severe grievances of the French peasantry. These were therefore renounced, along with the exclusive rights of rabbit warrens, fisheries, and dovecotes. The sale of offices was abolished, and the fees exacted from the poor, together with the privilege of holding a plurality of livings, were relinquished by the clergy. The deputies of the *Pais d'Etat*, or privileged provinces, with the deputies of Dauphiné at their head, next came forward, and offered a surrender of their ancient privileges, requesting that the kingdom might no longer remain parcelled out among Dauphinois, Bretons, Provençaux, &c. but that they should all form one great mass of French citizens. They were followed by the representatives of Paris, Marseilles, Lyons, Bourdeaux, Strasbourg, &c. who requested leave to renounce all their separate privileges as incorporations, for the sake of placing every man and every village in the nation upon a footing of equality. Thus the Assembly proceeded, till every member had exhausted his imagination upon the subject of reform. To close the whole, the Duc de Liancourt proposed that a solemn *Te Deum* should be performed, that a medal should be struck in commemoration of the events of that night; and that the title of RESTORER OF GALIC LIBERTY should be bestowed upon the reigning monarch. A deputation was accordingly appointed to wait upon the king, respectfully to inform him of these decrees.

Several succeeding days were necessary to form into laws the decrees of the 4th August, and committees were appointed to make out reports for that purpose. One of these reports having included the tithes and revenues of the clergy among the abuses that were to be done away, and having proposed in lieu of them to grant a certain stipend to the different ministers of religion to be payable by the nation, the clergy attempted to make a stand in defence of their property, and violent debates ensued. In these they were ably supported by the Abbé Sieyès: but as the clergy had formerly deserted the nobles, so they were now in their turn abandoned to their fate by the hereditary aristocracy. The popular party had long regarded the wealth of the church as an easy resource for supplying the wants of the state.—Never was there a more complete proof of the influence of opinion over the affairs of men. The Catholic clergy of France, though possessed of more property than they enjoyed at the time when princes took up arms or laid them down at their command, now found so few defenders, that they were terrified into a voluntary surrender of all that they and their predecessors had possessed for ages. In their overthrow, they scarcely enjoyed even the barren honour of having fallen the last of those privileged orders that so long had ruled over this ancient kingdom. They and the nobles, and the king, still possessed their former titles and nominal dignity; but all of them were now subdued, and at the mercy of the commons of France, who speedily dismissed them at their pleasure.

As a short season of tranquillity in the Court and the National Assembly succeeded these great popular sacrifices, the King laid hold of it as a fit opportunity for the appointment of a new ministry. They consisted of the Archbishop of Vienne, the Archbishop of Bourdeaux, M. Neckar, the Count de St Priest, Count de

Montmorin, the Count de la Luzerne, and the Count de la Tour du Pin Paulin. M. Neckar, as minister of finance, having stated the distressed situation of the revenue, presented the plan of a loan of thirty millions of livres. But M. Mirabeau, from a spirit of rivalry, as it would seem, to M. Neckar, prevailed with the Assembly to alter and to narrow the conditions of it in such a degree that very few subscribers were found, and the loan could not be filled up. This failure involved the Assembly in a considerable degree of unpopularity; in consequence of which they allowed M. Neckar to prescribe his own terms for the purpose of obtaining a loan of eighty millions. But the happy instant of public confidence had been allowed to pass away, and this loan was never more than half filled up. Recourse was next had to patriotic contributions; and great numbers of gold rings, silver buckles, and pieces of plate, were presented to the Assembly. The Royal family themselves sent their plate to the mint, either to give countenance to these donations, or, as M. Neckar has since asserted, through absolute necessity, for the purpose of supporting themselves and their family. The confusion into which the nation had been thrown by the late events had produced a suspension of the payment of all taxes. There existed, in fact, no efficient government; and if society escaped entire dissolution, it was merely in consequence of those habits of order which are produced by a state of long continued civilization. The business of government could not be transacted without money, and many vain efforts were made by the ministry to procure it. At length M. Neckar was driven to the desperate resource of proposing a *compulsory loan*, or that every individual possessed of property should advance to the state a sum equal to one-fourth of his annual income. This bold proposition was supported by Mirabeau, and adopted by the Assembly; but it does not appear to have ever been effectually executed.

In the mean time, the Assembly was busily occupied in framing the celebrated declaration 'of the *Rights of Man*, which was afterwards prefixed to the new constitution. This was followed by the discussion of a point of much delicacy and difficulty; viz. What share of legislative authority the king ought to possess under the new constitution; whether an absolute negative or *veto*, a suspensive *veto*, or no *veto* at all? This question operated like a touchstone for trying the sentiments of every person; and the assembly, consisting of 1200 men, was now seen to arrange itself into two violent contending factions. The debates were vehement and tumultuous, and continued for many days. As the assembly sat in public, and as multitudes of people of all descriptions were admitted into the galleries, and even into the body of the hall among the members, many indecent scenes took place in consequence of the interference of the spectators to applaud or censure the sentiments which were delivered. Thus the public at large became speedily interested in the discussion; the city of Paris took a side in opposition to the *veto*, and the whole empire was thrown into agitation by new and speculative questions. The distinguished place which France holds among the nations of Europe rendered these singular events and discussions the object of universal attention. The contagious love of novelty spread rapidly abroad, and gave rise to that well-founded jealousy on the part of the monarchs of Europe, which

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55
Who find
great diffi-
culty in
raising mo-
ney.

56
Discussion
on the
*Rights of
Man*,

57
And the
king's *veto*.

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was speedily to burst forth in a bloody tempest.—In the present case, the people of Paris became most eagerly interested. Rumours of plots were spread through the country, and a new storm was obviously gathering, when the question was thus got quit of. M. Mounier remarked, that the executive power could possess no negative against the decrees of the present assembly, which had been nominated by the nation with supreme powers for the express purpose of framing a constitution, which was to remain binding over all orders of men in the state; and with regard to future legislatures, the king declared by a message, that he wished to possess no more than a *suspensive veto*. It is remarkable that the popular Mirabeau concluded a speech in favour of the absolute *veto* of the crown with these words, "That it would be better to live in Constantinople than in France, if laws could be made without the royal sanction." This political adventurer is, however, accused of having taken care to circulate in Paris a report that he had opposed the *veto* with all his influence; and to give credit to the story, he is said to have quitted the assembly just before the division, that his vote might not appear on record against it.

In the debates about the *veto* the month of August was spent; and in the beginning of September a new constitutional question was presented to the assembly by one of its numerous committees. This was, Whether the legislative body ought to consist of one or of two chambers? Mounier, Lally, Tollendal, Clermont Tonnerre, and others, who were zealous lovers of freedom upon what were then accounted moderate principles, supported eagerly the idea of establishing two independent chambers in imitation of the British constitution; but they were deserted both by the democratic and aristocratic parties. The first of these regarded an upper house or senate as a refuge for the old aristocracy, or as the cradle of a new one; while the higher nobles and clergy feared lest such an arrangement might prevent the future re-establishment of the ancient division into three orders. Of 1000 members who voted, only 89 supported the proposal for dividing the legislature into two chambers.

Soon after this, the king gave his sanction to the important decrees of the 4th of August, but not without some hesitation, and expressing doubts of the wisdom of some of them in a letter to the assembly. At the same time the *inviolability* of the person of the monarch was decreed, the indivisibility of the throne, and its hereditary descent from male to male in the reigning family.—But we shall not here attempt to enter into a detail of the various articles of the new constitution as connected with the circumstances under which they became the subject of debate. We shall only state those more remarkable circumstances which tend to ascertain the peculiar changes which the sentiments of the nation underwent in the progress of a revolution the most remarkable that occurs in human history.

In consequence of the debates upon the questions of the *veto* and the two chambers, the minds of parties had become much irritated. Paris wore the same threatening aspect that it had done in the months of June and of July preceding; and every thing seemed tending towards an important crisis. The aristocratic party accused their antagonists of a design to excite new insurrections; and the charge was retorted, by cir-

culating a report that a plot for conveying the king to Metz was already ripe for execution.

From the period of the defection of the French guards, who were now in the pay of the capital, the protection of the royal family had been entrusted to the militia or national guard of Versailles, together with the regiment of the *gardes du corps*, which was composed entirely of gentlemen. Upon the circulation of the report of the intended flight of the king, the French guards began to wish to be restored to their ancient employment of attending his person, for the purpose of preventing any attempt of this nature. This idea was eagerly cherished by the capital; and, in spite of every effort used by M. de la Fayette, the obvious appearance of approaching disturbances could not be prevented. The popular party saw the advantages which they would derive from placing the assembly and the king in the midst of that turbulent metropolis which had given birth to the revolution, and upon the attachment of which they could most securely depend. Every encouragement was therefore given by the most active leaders of what was now called the *Democratic* party to the project of establishing the court at Paris. The ministry were under no small degree of alarm; and the count d'Estaing, who commanded the national guard of Versailles, requested the aid of an additional regiment. The regiment of Flanders was accordingly sent for: its arrival caused no small degree of anxiety; and every effort was instantly made to gain over both officers and soldiers to the popular cause.

On the first of October the garde du corps, probably for the purpose of ingratiating themselves with the newly arrived regiment, and perhaps to attach them more steadily to the royal cause, invited the officers of the regiment of Flanders to a public entertainment. Several officers of the national guard, and others of the militia, were invited. The entertainment was given in the opera house adjoining to the palace; several loyal toasts were drank: but it is asserted, that when the favourite popular toast *The Nation* was given, it was rejected by the gardes du corps. In ordinary cases, such a trifling circumstance as this, or even any other of the transactions of a night of festivity, would justly be regarded as unworthy of notice in recording the more remarkable events in the history of a great nation; but such was now the singular state of affairs, that the most trivial occurrences were instrumental, by their combination, in the production of important consequences. The queen, having seen from a window of the palace the gaiety which prevailed among the militia, prevailed with the king, who was just returned from hunting, to visit them along with herself and the dauphin. Their sudden appearance in the saloon kindled in an instant the ancient enthusiasm of French loyalty. The grenadiers of the regiment of Flanders, along with the Swiss chasseurs, had been admitted to the desert; and they, as well as their officers, drank the health of the King, Queen, and Dauphin, with their swords drawn. The royal family having bowed with politeness to the company, retired.—Of all nations, the French are most liable to the influence of sudden impressions: the music played the favourite air, *O Richard! O mon Roi! l'univers t'abandonne*, "O Richard! O my king! the world abandons thee." In the eagerness of loyalty,

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61
Consequences of their mutual jealousy.

58
Discussion about the legislative body; whether it ought to consist of one or two chambers.

59
The royal sanction granted to the decrees of the 4th August, &c.

60
State of parties in Paris.

French Revolution, 1789. loyalty, the national cockade, which had been adopted by some of the gardes du corps, was thrown aside, and white cockades were supplied as quickly as they could be made by the ladies of the court.

When these events were next day reported at Paris, accompanied by a multitude of exaggerations, they gave rise to the most violent alarm. The capital was at that time suffering all the horrors of famine; and in such a situation, the news of a feast which others have enjoyed, seldom gives much pleasure to hungry men. To the former report of an intended flight on the part of the royal family, it was now added, that a counter revolution was speedily to be attempted by force of arms; and that the present scarcity was artificially created by the court for the purpose of reducing the people to submission. Their aristocratic antagonists have since asserted, that the famine was indeed artificial; but that it was created by a portion of the violent party in the national assembly, which was then denominated the *Cabal*, whose object was to excite commotions as the means of procuring an opportunity of setting the duke of Orleans at the head of the state, either as regent, or in some other form. To this last party Mirabeau is said to have belonged.

For four days no notice was taken in the assembly of what had passed at the entertainment given by the gardes du corps. On the 5th of October M. Petion mentioned it for the first time, and a violent debate ensued; during which Mirabeau rose and exclaimed, "Declare that the king's person *alone* is sacred, and I myself will bring forward an impeachment;" thereby alluding to the conduct of the queen. While this debate was proceeding at Versailles, the city of Paris was in commotion. A vast multitude of women of the lowest rank, with some men in women's clothes, had assembled at the *Hotel de Ville*, and were calling aloud for arms and bread. They resolved to proceed instantly to Versailles to demand bread from the king and from the national assembly. La Fayette opposed them in vain; for his own soldiers refused to turn their bayonets against the women. Upon this one Stanislaus Maillard, who had distinguished himself at the taking of the Bastille, offered himself as a leader to the insurgents. He had the address to prevail with them to lay aside such arms as they had procured; and he set out for Versailles about noon with as much order among his followers as could well be expected from such an assemblage. Either because the passion for going to Versailles had suddenly become too infectious to be resisted, or because the multitude already gone thither was now accounted dangerous, the mayor and municipality of Paris thought fit to give orders to la Fayette instantly to set out for that place at the head of the national guard.

In the mean time, Maillard approached Versailles with his tumultuous troop; he arranged them in three divisions, and persuaded them to behave with tolerable decency. The king was hunting in the woods of Mendon when he was informed of the arrival of a most formidable band of women calling aloud for bread. "Alas! (replied he) if I had it, I should not wait to be asked." Maillard entered the assembly accompanied by a deputation of his followers to state the object of their journey. The assembly, to pacify them, sent a deputation of their own number along with them to

lay their complaints before the king. His majesty received the whole with great politeness, and readily agreed to go into any measures for the supply of the capital that could be suggested. The report of this behaviour had such an effect upon the multitude collected around the palace; that they began to disperse; but they were speedily succeeded by another croud not less numerous. A sudden resolution of flight seems now to have been proposed by the court; for the king's carriages were brought to the gate of the palace which communicates with the Orangry: but the national guard of Versailles refused to allow them to pass, and the king himself refused to remove, or to allow any blood to be shed in his cause.

La Fayette with his army at length arrived about 10 o'clock at night, and found the assembly in a very unpleasant situation. Their hall and galleries were crowded by the Parisian fish-women and others of the mob, who, at every instant, interrupted the debates. La Fayette waited upon the king, and informed him of the proceedings of the day, planted guards in every quarter; and after a scanty banquet had been procured for the multitude, he prevailed with the assembly to close their sitting for the night. In this last part of his conduct M. la Fayette has been much censured, and probably not without reason; for it could scarcely be expected that such a night would be spent in peace by the immense assemblage of turbulent characters that were now brought together. All was quiet, however, till about six in the morning of the 6th, when a great number of women and desperate persons rushed forward to the palace, and attempted to force their way into it. Two of the gardes du corps were killed; the croud ascended the stair-case leading to the queen's apartment, but were bravely resisted by M. Miemandre a sentinel, who gave the alarm, and defended his post till he fell covered with wounds, of which, however, he afterwards fortunately recovered. The ruffians, reeking with his blood, rushed into the chamber of the queen, and pierced with bayonets and poniards the bed whence this persecuted woman had but just time to fly almost naked, and, through ways unknown to the murderers, had escaped to seek refuge at the feet of the king, who was already alarmed, and had gone to seek her.

The tumult became more violent every moment, and the sudden death seemed to threaten the royal family; but la Fayette was by this time at the head of his troops, whom he beseeched earnestly to save the gardes du corps from massacre. In this he was successful; some that had been taken prisoners were surrounded by the grenadiers of the French guards who protected them, and the retreat of the whole corps was easily secured. The croud was speedily driven from the different quarters of the palace, which they were already beginning to pillage; and the royal family ventured to show themselves at a balcony. A few voices now exclaimed, *Le Roi à Paris*, "the King to Paris." The shout became general; and the king, after consulting with la Fayette, declared that he had no objection to take up his residence at Paris, provided he was accompanied by the queen and his children. When the proposal was reported to the assembly, the popular leaders expressed much satisfaction. They ordered a deputation of 100 members to attend the king thither; they voted the national assembly inseparable from the king. His majesty

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Are car-
ried pris-
oners to Pa-
ris.

68

Triumph
of the po-
pular par-
ty.

69

The assem-
bly holds
its first ses-
sion at Pa-
ris.

set out at two o'clock a prisoner in the custody of the mob. Two gentlemen were selected from his body guard, and, with all the parade of an execution, beheaded in the court of his palace. Their heads were stuck upon spears, and led the procession; whilst the royal captives who followed in the train, and beheld this spectacle, were conducted so slowly, that a short journey of twelve miles was protracted to six hours. The king, the queen, and their children, were lodged in the old palace of the Louvre, while Monsieur went to reside at the Luxemburg. The city was illuminated, and the evening spent in triumph by the Parisians.

The removal of the king to Paris was regarded as a triumph by the popular party. The higher order of nobles considered it as completely ruinous to their hopes; and even many men of talents, such as Mounier and Lally Tollendal, whom we cannot avoid regarding as friends to the popular cause in its outset, now regarded every prospect of attaining a happy constitutional freedom as at an end, as the national representatives must be for ever exposed to the insults, and overawed by the influence, of a turbulent capital. Many members of the assembly took refuge in foreign countries, and used every effort to excite the other nations of Europe to hostility against France. As the duke of Orleans had been regarded as a chief agent in promoting the late disturbances, the marquis de la Fayette waited upon him, and insisted upon his leaving the kingdom for a time. The duke was overawed, and, on pretence of public business, went to England, where he remained for several months.

On the 19th of October, the National Assembly held its first session in Paris. The King was closely guarded in his own palace; and no apparent opposition now stood in the way to prevent the popular party from giving to their country such a constitution as they might judge expedient. Much, however, was yet to be done, and many difficulties remained, resulting from the habits of men educated under a very different order of things. Two days after the Assembly came to Paris, a baker was publicly executed by the mob, upon a false accusation of having concealed a quantity of bread. While the Assembly was at a distance, events of this nature had been little attended to, and the leading party avoided attempting to check these ebullitions of popular violence, from which they had derived so much advantage; but that party was now all-powerful, and so flagrant an offence committed against the law was regarded as an insult upon the sovereignty of the National Assembly. Two leaders of the mob were therefore tried and publicly executed, and a severe law was passed, of the nature of the British riot act, authorising the magistrates to act by military force against any multitude of persons that should refuse to disperse. Thus the peace of the capital was secured for several months; but in the country at large no small degree of anxiety and trouble still subsisted. The same suspicious temper which had prevailed at Paris agitated the provinces with the dread of plots and monopolies of grain. Add to this, that the noblesse in the country were by no means satisfied with the liberality with which their representatives had on the 4th of August voted away their privileges and their property. This produced violent jealousies between the peasants and their lords,

and gradually conveyed to every corner of the kingdom the political ferment which had commenced at Paris.

The National Assembly being now, however, in tolerable security, proceeded in the arduous attempt of forming a free constitution for the great empire of France. The Abbé Sieyès presented a plan for dividing the kingdom into 83 *departments*, of about 324 square leagues, and of each department into several *districts*, and each district was subdivided into *cantons* of four square leagues in extent. Thus the whole of the ancient divisions of the kingdom into governments, generalities, and bailiwicks, was in an instant obliterated. An attempt was also made to simplify in an equal degree the relative situation of individuals in civil life, by a decree which put an end to all distinction of orders and immunities, so far as any privilege whatever was concerned. At the same time, a bold and most important measure was adopted, which has since proved the organ of those terrible efforts which France has been enabled to make against the rest of Europe. This was the confiscation of the whole of the lands belonging to the church, for the purpose of supplying the exigencies of the state. In this transaction, all regard to justice was thrown aside. The lands of the church were as certainly the property of the then possessors of them as any entailed estate among us is the property of him who occupies it. The state may have had a right to appropriate to itself the church lands upon the death of the incumbents; but it might with equal justice, and perhaps greater propriety, have seized the enormous revenues of the Duke of Orleans, as have confiscated a single acre belonging to the most useless abbot without his own consent. This nefarious measure was proposed by the bishop of Autun, M. Tallegrand Perigord, a man of no religion, who had been promoted to the bench in a most irregular manner to serve this very purpose. The mode in which this property was to be expended was by issuing assignments (*assignats*) upon it; which assignments were to be received by the state for the payment of taxes, or for the purchase of church lands when set up to sale. A provision was at the same time made for the national clergy, who were for the future to be paid by the state. On the day following that on which this important measure was adopted, a decree was passed, suspending the parliaments of the kingdom from the exercise of their functions.

Decrees, in which the interests of so vast a multitude of individuals were involved, could not be carried into effect without much murmuring and opposition. The parliaments, in particular, began to exert themselves with vigour, and, by protests and other publications, attempted to invalidate the decrees of the Assembly as illegal; but these privileged bodies, who had often been accustomed to contend with some success against the despotic administration of their country, and on that account had been for ages the objects of public applause, now found themselves utterly forsaken, and unable to resist the mandate of a popular Assembly. After a few fruitless struggles, they were all of them under the necessity of submitting to their fate.

Nothing remarkable now occurred for some time.—The Assembly proceeded to organize the kingdom by the establishment of municipalities, and by reforming the jurisprudence of the country. It is to be observed, however, that when the parliament of Paris was abolished,

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 lished, the Chatelet, being the second court in that city, was retained for the purpose of trying those persons who had become most obnoxious by their attachment to the royal cause. This court had the spirit to acquit the Baron de Bezenval, Marshal Broglio, and the Prince de Lambesq. But having incurred much popular odium on this account, they were guilty of the unworthy meanness of condemning to death the Marquis de Favres, for a pretended conspiracy (of which no tolerable proof was ever brought) to massacre La Fayette, Bailly, and Neckar; and to convey the King to Peronne.

790. During the whole of this winter the King had been very strictly watched by numerous guards placed around his palace, inasmuch that the other nations of Europe considered him as in a state of captivity. To do away this impression, if possible, and to make their king appear a voluntary agent in the measures that had lately been adopted, was now regarded as a matter of some importance. Every effort was therefore made to prevail with him to come to the Assembly suddenly, and, as it were, of his own voluntary motion, there to declare his adherence to the measures which had lately been adopted. For some time he resisted this proposal; but at length, on the 4th of February, he did suddenly appear in the National Assembly, where he complained of the attempts that had been made to shake the new constitution. He declared his wish "that it should be universally known that the monarch and the representatives of the nation were united, and their wishes were the same; that he would defend the constitutional liberty of the state; that, in conjunction with the Queen, he would early form the sentiments of his son for that new order of things which the circumstances of the empire had introduced." This declaration dispirited the aristocratic party in no small degree, and increased that unhappy tendency of looking for aid from foreign countries which they had always been too apt to indulge.

74
 On the 13th of February, monastic establishments were suppressed, and their lands confiscated; but the present friars and nuns were allowed pensions for their subsistence, and to continue the observance of their monastic vows, if they thought fit. We may observe here, that, in consequence of the evacuation of the monasteries, it is probable that about this time the Breton committee began to assume the appellation of the *Jacobin Club*, from the hall belonging to the Jacobin friars at Paris, in which their meetings were now held.

March 15th. 75
 An event occurred at this time which tended in no small degree to increase the odium under which the old government already laboured. This was the publication of the *Red Book*, or list of pensions and donations granted by the crown. In consequence of the most pressing instances, it had been communicated by M. Neckar to a committee of the Assembly, after many intreaties, and the most solemn promises of secrecy. It afforded, however, too striking an advantage to the popular party not to be made use of, and in a few days M. Neckar, to his no small surprise, saw this register publicly sold by every bookseller in Paris. He ought not, indeed, to have been surprised; and the giving up of this list is one of the many proofs which the transactions of that period afford of his great unfitness for the office which he held. With much indignation, however, he de-

manded why the committee had published it without the permission of the Assembly or the King? But he was told by the committee, that "as to the Assembly, they were sure of its approbation; and as to the King, they were not his representatives." To give an idea of the effect of this publication, it is only necessary to remark, that, under the short administration of M. Calonne, the two brothers of the King had received from the public treasury, independent of their legitimate income, nearly two millions sterling, and that L. 600,000 had been granted to an individual, because he was the husband of Madame de Polignac. M. Neckar's opposition to this publication tended in no small degree to injure his popularity, and the rest of the ministry began to lose the confidence of the public. Indeed, at this time, fertile causes of alarm prevailed on all sides. The clergy were attempting to revive in the provinces the ancient animosities between the Roman Catholics and the Protestants, ascribing the late decrees of the Assembly to the latter. The German Princes who possessed property in the north of France were complaining loudly of the violation of their rights by the abolition of the feudal system, although the National Assembly had voted to them a compensation. The most melancholy intelligence was received from their colonies in the West Indies. In regulating these, the Assembly had not recognized the right of the free negroes to enjoy the same privileges with other citizens; at the same time, they did not go the length of denying these privileges. This uncertain conduct produced infinite calamities. The whites contended with those commonly called *people of colour*. These again sometimes stood in opposition to the free negroes, or to the slaves; and hence it sometimes happened that no less than three hostile assemblies were held at the same time in the same colony, which made war upon each other with the most inveterate fury. Each party found protectors in the National Assembly of the parent state. Those who favoured or opposed the existence of distinctions at home, in general followed out the same principle with regard to the colonies.

78
 On the 14th of May, M. de Montmorency communicated to the National Assembly the preparations for the war in which England and Spain were engaged. This brought forward the constitutional question, "Who ought to possess the power of declaring peace and war?" The Count Clermont Tonnerre, Messrs de Serent, Virieu, and Dupont, supported the royal prerogative; while on the other side, the exclusive right of the legislative body to exercise this important prerogative was supported by Messrs d'Aiguillon, Garat jun. Freteau, Jellot, Charles Lameth, Sillery, Petion, Robespierre, &c. M. Petion proposed a decree "that the French nation renounced for ever all idea of conquest, and confined itself entirely to defensive war;" which was passed with universal acclamation. The Count de Mirabeau at length successfully proposed that peace and war should be declared by the king and the legislative body in conjunction; and the decree that was passed on the subject is a strange farrago of contradictions and absurdities. It enjoined the King to "guard the state from external attacks." But how could this be done, without repelling any attack that might be made upon it? This, however, he could not do, without previously informing the National Assembly; and if that body changed

not

French
Revolution,
1790.

79
Farce acted
in the as-
sembly by
a Prussian
refugee,
&c.

80
Abolition
of heredi-
tary titles.

81
Proposal to
commemo-
rate the tak-
ing of the
Bastile.

not to be sitting at the time, he was bound to let the enemy advance without opposition till he had convened his orators, dispersed over 24,000 square leagues, and listened to their metaphysical quibbles in Paris.

On the 19th June, a very singular farce was acted in the Assembly. A Prussian refugee, who called himself Anacharis Clouts, and who was struggling hard to bring himself into public notice, on an evening sitting (which, it is to be observed, was generally ill attended by the persons of the highest rank), introduced to the Assembly a number of persons dressed in the different habits of all the different countries that could be thought of. In a formal harangue, he told the Assembly that he was come, as the *orator of the human race*, at the head of the representatives of all nations, to congratulate them upon the formation of their new constitution. He was answered by the President with abundance of solemnity, and retired with his motley groupe. This fantastical piece of folly, which in any other country than France would scarcely, perhaps, have excited a smile, was treated by the Assembly in a serious light. Alexander Lameth proposed, that the figures of different nations exhibited in chains at the feet of Louis XIV. should be destroyed as an insult upon mankind. M. Lambel, a lawyer, at this moment proposed the *abolition of all hereditary titles*. He was supported by La Fayette, St Fargeau, and the Viscount de Noailles. The decree was passed, along with another suppressing all armorial bearings. It is our intention at present rather to state facts than to hazard any political opinion concerning the wisdom or folly of the transactions which we record. It may here, however, be remarked, that no part of the proceedings of the French National Assembly was received by persons of rank upon the Continent of Europe with so much indignation as this.—The feudal system had been overturned, and the property of the church wrested from it, with little comparative notice; but when those nominal distinctions were attacked which antiquity had sanctioned, and personal vanity rendered dear, the surrounding nations were instantly alarmed, and beheld with terror the levelling precedent. We may likewise add, that no part of their proceedings was more inimical to rational and practical freedom. To preserve a perfect equality of ranks is impossible. In a commercial nation, industry will procure wealth, and wealth will every where procure dependents. Now nothing more contributes to keep within some tolerable bounds the insolence of newly acquired wealth, than the rank attached to birth and nobility, which time and prejudice have conspired to make respectable. It is not a little remarkable, that of all the King's ministers, Neckar alone, a plebeian, a republican, born and bred in a democracy, advised his Majesty to refuse his assent to this foolish decree, as a violent but useless encroachment upon the prejudices of a powerful order of the state.

In the mean time, the capital was entirely engrossed by hurry and bustle. M. Bailly had proposed a plan for commemorating the anniversary of the taking of the Bastile. It was adopted, because it flattered the vanity of the people, by presenting them with a splendid spectacle in commemoration of their own exertions.—The army had been much disorganized; and it was resolved to attempt to unite all its branches, as well as the whole departments of the state, in one common at-

tachment to the new order of things, by collecting into one place deputations, for the purpose of swearing fidelity to the new constitution. In the middle of the Champ de Mars an altar was erected, at which the civic oath, as it was called, was to be taken. Around the altar an amphitheatre was thrown up capable of containing 400,000 spectators; 2000 workmen were employed in this operation; and the people of Paris, fearing lest the plan might not be completed, assisted in the labour. All ranks of persons, the nobles, clergy, and even ladies, with the eagerness for novelty so peculiar to that people, united their efforts. Crowds of foreigners as well as natives hurried to the capital to be present at this solemnity, which was called the *Confederation*. The long-expected 14th of July at length arrived. At six o'clock in the morning the procession was arranged on the Boulevards, and consisted of the electors of the city of Paris, the representatives of the commons, the administrators of the municipality, a battalion of children, with a standard, inscribed "The hopes of the nation;" deputies from the troops of France wherever quartered, and of every order, along with deputies from all the departments; to these were added immense detachments of the military, and of the national guards, along with an almost infinite multitude of drums, trumpets, and musical instruments. The procession was extremely splendid, as every district had its peculiar decorations. The national assembly passed through a grand triumphal arch, and the king and queen, attended by the foreign ministers, were placed in a superb box. After a solemn invocation to God, the King approached the altar, and, amidst the deepest silence, took the following oath: "I the King of the French do swear to the nation, that I will employ the whole power delegated to me by the constitutional law of the state, to maintain the constitution, and enforce the execution of the law." The president of the national assembly then went up to the altar, and took the civic oath, "I swear to be faithful to the nation, the law, and the king; and to maintain with all my powers the constitution decreed by the national assembly, and accepted by the king." Every member of the assembly standing up, said, "That I swear." La Fayette then advancing, took the oath for himself; the other deputies of the national guards pronouncing after him, "That I swear;" and these words were solemnly pronounced by every individual of this immense assembly. *Te Deum* was then sung. The performance was sublime beyond the powers of description. Never perhaps before was there such an orchestra, or such an audience: their numbers baffled the eye to reckon, and their shouts in full chorus rent the skies. It is impossible to enumerate all the means which were employed to add splendor to this day. It ended with a general illumination, and no accident disturbed the public tranquillity.

The assembly now proceeded in the formation of the constitution with considerable tranquillity; which, however, was disturbed by an unhappy event at Nancy. Most of the officers of the army were unfriendly to the late revolution, and every means had been employed by them to disgust the soldiers with it. At Nancy, in particular, necessities had been denied them, and their pay was kept back, under pretence that this was the will of the national assembly. Driven to despair, the regiments in garrison threw off their allegiance, and demanded

Fren
Revolut
1790
82
Ceremo
of the
federat

83
The fol-
diers at
Nancy d
gusted, a
the const
quences

manded loudly the regimental accounts. They seized at the same time the military chest, and sent a deputation to state their case at Paris to the national assembly. But the officers were before-hand, and prepossessed the minister of war against them; upon whose representation a decree was passed, authorising the commander in chief of the province, M. Bouillé, to reduce the insurgents by force. This was no sooner known, than the national guard of Nancy assembled, and sent a deputation to give a fair statement of facts. But Bouillé, without waiting the result of an explanation, hastened to Nancy at the head of all the troops he could suddenly collect; and having fallen upon the regiments of Chateauneux and Maître de Camp, after putting an immense multitude to the sword, he took 400 prisoners.

The King's regiment was prevented from acting against Bouillé by the intrepidity of a young officer of the name of *Desfilles*, who, however, died of the wounds which he received on the occasion. The news of these events filled Paris with indignation. The assembly afterwards reversed its own decrees against the insurgents at Nancy. Public honours were decreed to the memory of Desfilles; but Bouillé could not be punished, because he had only acted in obedience to authority.

M. Neckar's popularity had been gradually declining, as he was unwilling to go all the lengths that the ruling party wished. He gave in his resignation on the 4th of September, and speedily thereafter left the kingdom. He was regretted by no party. He was regarded, on the one side, as having conducted the kingdom to its ruin, by the concessions which he originally advised the king to make in favour of the *tiers état*; while he was despised by the opposite party as a lukewarm politician, of narrow views, and a feeble mind. He departed, however, with the unblemished reputation of strict integrity. M. Neckar does not seem to have penetrated deeply into the characters of men, or to have had any conception of the effects of that terrible and restless energy which is called forth in a nation which attempts to make important changes in its ancient manners and government. Having no conception of the important era which was about to open upon that country of which he was the minister, he was far from being qualified to direct or controul it amidst the convulsions which it was destined to encounter. Unable to brook the loss of his popularity, he peevishly retired to Switzerland, where he published a work, which shows to the conviction of every unprejudiced reader the integrity of the French king, and the wicked projects of the leading democrates, whom he himself had armed with power.

The remaining part of this year was occupied in attempts to introduce some degree of subordination into the navy of France, which had been much disorganized, and in farther regulating the affairs of the clergy. It was now declared, that such clergymen as should not take the following oath, which had been prescribed some months before, should be considered as ejected from their benefices: "To watch carefully over the faithful in the parish or diocese which was entrusted to his care; to be faithful to the nation, the law, and the king; and to maintain to the utmost of his power the new constitution of France, and particularly the decrees relative to the civil constitution of the clergy." This

decree rendered the situation of conscientious men extremely perplexing; especially as the pope testified in marked terms his disapprobation of the oath. The people were reduced to the dilemma of choosing between their new political and their old religious prejudices, and the result was extremely unfavourable to the interest of religion.

The assembly commenced the new year with a decree, announcing the termination of its session, which was to take place as soon as it should have finished the discussion of a list of constitutional articles. In the mean time, on the side of Germany, Spain, Italy, and Savoy, hostile appearances began to be exhibited, and bodies of troops advanced around the French frontier. The Emperor Leopold was, however, too cautious to announce his intentions; and the King soon communicated a letter from him, containing protestations of amicable dispositions, but adding, that "the innovations occasioned by the decrees of the 4th of August ought to be done away." The King treated this merely as an official measure on the part of the Emperor, that he might not appear to renounce the claims of certain German princes connected with Lorraine and Alsace. But the assembly expressed some alarm, and voted an augmentation of the national force. About this period several new efforts were made by the disaffected clergy in various parts of the kingdom to excite disturbances, which it is unnecessary to mention in detail. On the 20th of February the public attention was roused by a circumstance that in any other state of affairs would have been accounted unimportant. The King announced to the assembly, that his aunts, the daughters of Louis XV. had that morning left Paris; but as he did not apprehend that the existing laws laid them under any restraint in this respect, he had not opposed their departure. After some debate, the assembly agreed that the King had judged well; and these princesses were left to pursue their journey to Rome, which they reached after some delays occasioned by the jealousy of certain municipalities through which they passed. Thus the kingdom was gradually deserted by every branch of the royal family, excepting the King and his eldest brother Monsieur. The assembly, however, continued its labours with considerable quietness. In the end of the month of March died the celebrated M. de Mirabeau, at the age of 42 years; a man whose integrity has for many good reasons been much suspected, but whose political address and intrepidity, and whose splendid powers of eloquence, have been seldom equalled. He received from his countrymen at his death marks of respect unparalleled in modern history. During his short illness, his door was besieged by anxious citizens. A mourning of eight days was decreed by the assembly, and also a grand procession, which was attended by all the public functionaries. He was the first who was interred in the new magnificent Pantheon, consecrated to the reception of the remains of illustrious men. But his ashes were afterwards removed, in consequence of very clear proofs that he had not been incorruptible by money.

During the whole of this spring, much fear was entertained that some attempts at a counter revolution were about to be made. The emigrant army assembled on the borders of Alsace was reviewed by the prince of Condé. Their uniform was black, faced with yellow, with

French
Revolution

1791.

86

Hostile ap-
pearances
in Germany,
Italy, &c.

87

Departure
of the
king's
aunts
from
Paris.

88

Death of
Mirabeau.

89

An emi-
grant army
assembled
on the
borders of
Alsace.

French
Revolution,
1791.

90
Jealousy of
the people
and mili-
tary left
the king
and his fa-
mily should
emigrate.

91
Behaviour
of Bouillé
on the
frontiers.

92
The king,
queen, and
royal fami-
ly, leave
Paris.

93
Monsieur
and ma-
dame ar-
rive at
Brussels.

with a death's head, surrounded by a laurel wreath on one cuff, and a sword on the other; with the motto, "Conquer or die." The king was also surrounded by crowds of nonjuring priests and other disaffected persons. Thus, that popular jealousy which in every period of the revolution has strikingly marked the French character, was kept on the alarm. On the 18th of April, therefore, when the royal family was preparing to go to St Cloud to pass some days, a report was instantly spread that the king was about to fly from the country. The carriages were immediately surrounded by people. La Fayette drew out the national guard, but they refused to act. "We know (exclaimed they) that we are violating the laws, but the safety of our country is the first law." The King instantly went to the assembly, and with much spirit complained of the insult. He was answered respectfully by the president, and continued his journey. As the royal family had enjoyed a considerable degree of freedom for some time past, which was demonstrated by the unsuccessful opposition made to this journey—the present opportunity was embraced for intimating to foreign courts his acceptance of the constitution; and all obnoxious persons were dismissed from about his person. The breach of discipline on the part of the national guard on this occasion was so much resented by La Fayette, that he resigned his command. Paris was thrown into consternation; and it was not till after the most universal solicitation that he was prevailed upon to resume his office.

About this time M. de Bouillé, to whom the protection of the frontiers was entrusted, was employing, as it is now said, every means in his power to render the country defenceless. The garrisons were left unprovided; dissension was spread among the national troops; they were removed from the frontiers, and their place was occupied by foreigners, wherever it could be done. The emigrants abroad, and their friends at home, were lying in wait for an opportunity of revolt;—when suddenly, on the 21st of June, it was announced from the Thuilleries, that the king, the queen, the dauphin, with monsieur and madame, had quitted the palace and the capital, without leaving any information of their intention or their route. The emotion excited by this news among the multitude was a mixture of consternation and rage. The national assembly, however, acted with much coolness. They instantly took upon themselves the government, and decreed their sittings permanent. They sent messengers, at the same time, in all directions, to attempt to lay hold of the fugitives. These had taken different routs. Monsieur and madame arrived safely at Brussels on the 23d. The king, queen, and their children, when they came to a considerable distance from the capital, were furnished by Bouillé with a guard of dragoons, under pretence of protecting treasure for the pay of the troops. At the distance of 156 miles, and when only a few leagues from the frontiers, they were arrested at St Menesbould by the postmaster, M. Drouet, formerly a dragoon in the regiment of Condé. At half past seven o'clock in the evening the carriages stopped to change horses at his house; he thought he recollected the queen, and imagined that the king's face resembled the impressions stamped upon assignats. The escort of dragoons increased the suspicion. He suffered them to depart at

11 o'clock without notice; but taking a companion with him, he went by a shorter road to Varennes. With the assistance of the postmaster there he gave the alarm, and overturned a carriage on the bridge, which detained the royal travellers till the national guard of the place had assembled, and the arrest was effected without bloodshed. They were brought back to Paris by a deputation from the assembly. At his departure, the king had imprudently left behind him a memorial, in which he declared, that he never had thought any sacrifice too great for the restoration of order; but that the destruction of the kingdom, and the triumph of anarchy, being the only reward of all his efforts, he thought it necessary to depart from it. He then takes a review of the faults of the new constitution, the grievances he has suffered; and protests against every thing that he had been compelled to do during his captivity.

Different parties were very differently affected by this ill-conducted and unfortunate flight of the King. A small republican party had already begun to appear, and during the king's absence, attempts were made to induce the public at large to consider the royal authority as no necessary part of a free constitution. But the minds of men were by no means prepared for the reception of this new doctrine. The idea, however, having been thus publicly proposed, left some impressions, which in time contributed to give rise to important events. By far the greater number of leading men, however, were at present convinced, that it was impossible to conduct a great empire like France, well and prosperously, without the assistance of an hereditary chief. They therefore determined to pass over the affair with as much silence as possible, and to hasten the period when their new constitution should be complete. But there is reason to believe, that this journey was at the long-run highly instrumental in producing very fatal effects to the personal safety of the monarch.

His flight seemed a signal for emigration. Many of the aristocratic party sent in resignations of their seats in the national assembly. Troops were levied on the frontiers in the King's name; who took care, however, to disavow any connection with such a procedure. Bouillé emigrated, and afterwards sent to the assembly a furious threatening letter: "You shall answer (says he) for the lives of the king and of the queen to all the monarchs of the universe. Touch but a single hair of their heads, and not one stone shall be left upon another in Paris. I know the roads. I will conduct the foreign armies. This letter is but the forerunner of the manifesto of the sovereigns of Europe."

A considerable calm throughout France followed these events, and it might be regarded as in a state of tranquillity. It contained, indeed, parties entertaining much animosity against each other, and many citizens had withdrawn to foreign countries; but the peace was not broken, and moderate men hoped that much prosperity would follow from the late agitations. But this calm was delusive; and in the midst of it those projects were formed which were afterwards to prove so fatal to the peace of France and of Europe. Towards the close of this summer, a convention took place at Pillnitz in Saxony between the emperor Leopold and the king of Prussia. Its object was not known at the time, but it gradually came into view, and is now by many under-

French
Revolution,
1791.
94
The king
and queen
arrested
at Varennes.

95
Confes-
sion of
unfortu-
nate flight.

96
Treaty
of Pillnitz.

Road

stood to have been intended for the purpose of concluding a league for the invasion of France, the new-modelling of its government, and the partition of some of its fairest provinces. The following paper has been repeatedly published as the copy of a treaty concluded and signed at Pavia, and is generally understood to have been identical with, and therefore known by, the name of the *Treaty of Pilnitz*. We are far from vouching for its authenticity. It may have been fabricated by the French assembly, to unite all parties in the nation against the foreign powers which threatened to invade them. But in stating the events of this revolution, it is perhaps still more necessary, for the purpose of rendering the actions of men comprehensible, to give an account of what was at the time *believed* to have occurred, than it now is to ascertain what was actually true.

Partition Treaty between the Courts in Concert, concluded and signed at Pavia, in the Month of July 1791.

His majesty the emperor will take all that Louis XIV. conquered in the Austrian Netherlands, will give them to his serene highness the elector Palatine; so that these new possessions, added to the Palatinate, may hereafter have the name of *Austrasia*.

His majesty will preserve for ever the property and possession of Bavaria, to make in future an indivisible mass with the domains and hereditary possessions of the house of Austria.

Her serene highness the archduchess Maria Christina shall be, conjointly with his serene highness her nephew the archduke Charles, put into hereditary possession of the duchy of Lorraine.

Alsace shall be restored to the empire; and the bishop of Strasbourg, as well as the chapter, shall recover their ancient privileges, and the ecclesiastical sovereigns of Germany shall do the same.

If the Swiss Cantons consent to accede to the coalition, it may be proposed to them to annex to the Helvetic league the bishopric of Porentrui, the desiles of Franche Comté, and even those of Tyrol, with the neighbouring bailiwicks, as well as the territory of Vevray, which intersects the Pays de Vaud.

Should his majesty the king of Sardinia subscribe to the coalition, La Bresse, Le Bugey, and the Pays de Gex, usurped by France from Savoy, shall be restored to him.

In case his Sardinian majesty can make a grand diversion, he shall be suffered to take Dauphiné, to belong to him for ever as the nearest descendant of the ancient dauphins.

His majesty the king of Spain shall have Roussillon and Bearn, with the island of Corsica; and he shall have the French part of the island of St Domingo.

Her majesty the empress of all the Russias shall take upon herself the invasion of Poland, and at the same time retain Kaminiech, with that part of Padolia which borders on Moldavia.

His majesty the emperor shall oblige the Porte to give up Chocsim, as well as the small forts of Servia, and those on the river Luma.

His majesty the king of Prussia, by means of the above-mentioned invasion of the empress of all the Russias into Poland, shall make an acquisition of Thorn and Dantzic, and there unite the Palatinate on the east to the confines of Silesia.

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His majesty the king of Prussia shall besides acquire Luface; and his serene highness the elector of Saxony shall in exchange receive the rest of Poland, and occupy the throne as hereditary sovereign.

His majesty the present king of Poland shall abdicate the throne on receiving a suitable annuity.

His royal highness the elector of Saxony shall give his daughter in marriage to his serene highness the youngest son of his royal highness the grand duke of all the Russias, who will be the father of the race of the hereditary kings of Poland and Lithuania. (Signed) LEOPOLD. PRINCE NASSAU. COUNT FLORIDA BLANCA. BISCHOFFSWERDER.

In the mean time, the national assembly was hastening fast to the completion of the new constitution. ⁹⁷ The new constitution was finished on the 3d of September, and presented to the king. It begins with the following declaration of the rights of a man and a citizen, and thereafter follows the different branches; the chief of which are here translated.

I. All men are born, and remain, free and equal in rights: social distinctions cannot be founded but on common utility.

II. The end of all political associations is the preservation of the natural and imprescriptible rights of man: these rights are liberty, property, security, and resistance against oppression.

III. The principle of *sovereignty* resides essentially in the nation: *no body of men, no individual*, can exercise an authority that does not emanate expressly from that source.

IV. *Liberty* consists in the power of doing every thing except that which is hurtful to another: hence the exercise of the natural rights of every man has no other bounds than those that are necessary to ensure to the other members of society the enjoyment of the same rights: those bounds can be determined by the law only.

V. The law has a right to forbid those actions alone that are hurtful to society. Whatever is not forbidden by the law, cannot be hindered; and no person can be constrained to do that which the law ordaineth not.

VI. The law is the expression of the general will: all the citizens have a right to concur personally, or by their representatives, to the formation of the law: it ought to be the same for all, whether it protect, or whether it punish. All citizens being equal in the eye of the law, are equally admissible to dignities, places, and public offices, according to their capacity, and without any other distinction but that of their virtue and their talents.

VII. No man can be accused, arrested, or detained, except in cases determined by the law, and according to the forms which the law hath prescribed. Those who solicit, dispatch, execute, or cause to be executed, arbitrary orders, ought to be punished; but every citizen that is summoned or seized in virtue of the law, ought to obey instantly—he becomes culpable by resistance.

VIII. The law ought to establish such punishments only as are strictly and evidently necessary; and no person can be punished but in virtue of a law established and promulgated prior to the offence, and legally applied.

IX. Every man being presumed innocent till such time

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Revolution;
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97
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time as he has been declared guilty, if it shall be deemed absolutely necessary to arrest a man, every kind of rigour employed, not necessary to secure his person, ought to be severely repressed by the law.

X. No person shall be molested for his opinions, even such as are religious, provided that the manifestation of those opinions does not disturb the public order established by the law.

XI. The free communication of thought, and of opinion, is one of the most precious rights of man. Every citizen, therefore, may freely speak, write, and publish, his sentiments; subject, however, to answer for the abuse of that liberty, in cases determined by the law.

XII. The guarantee of the Rights of Man and Citizens, involves a necessity of *public force*: this force is then instituted for the advantage of all, and not for the particular utility of those to whom it is confided.

XIII. For the maintenance of public force, and for the expences of administration, a common contribution is indispensably necessary: this contribution should be equally divided amongst all the citizens, in proportion to their abilities.

XIV. Every citizen has a right, by himself, or by his representatives, to decide concerning the necessity of the public contribution; to consent to it freely; to look after the employment of it; to determine the quantity, the distribution, the collection, and duration.

XV. The society has a right to demand from every public agent an account of his administration.

XVI. Every citizen, in which the guarantee of rights is not assured, nor the separation of powers determined, has *no constitution*.

XVII. Property being a right inviolable and sacred, no person can be deprived of it, except when the public necessity, legally ascertained, shall evidently require it, and on condition of a just and previous indemnification.

The constitution guarantees, as natural and civil rights,

1. That all citizens are admissible to places and employments without any distinction, but that of ability and virtue.

2. That all contributions shall be divided equally amongst all the citizens, in proportion to their means.

3. That the same crimes shall be subject to the same punishments, without any distinction of persons.

The constitution in like manner guarantees, as natural and civil rights,

Liberty to all men of going, staying, or departing, without being arrested, or detained, but according to the forms prescribed by the constitution.

Liberty to all men of speaking, writing, printing, and "publishing their thoughts, without having their writings subjected to any examination or inspection before publication;" and of exercising the religious worship to which they are attached.

Liberty to all citizens of assembling peaceably, and without arms, complying with the laws of police.

Liberty of addressing to all constitutional authorities petitions individually signed.

The constitution guarantees the inviolability of property, or a just and previous indemnity for that of which public necessity, legally proved, shall require the sacrifice.

A public instruction shall be created and organized, common to all citizens, gratuitous with regard to those parts of tuition indispensable for all men, and of which the establishment shall be gradually distributed in a proportion combined with the division of the kingdom.

"The kingdom is one and indivisible;" its territory, for administration, is distributed into 83 departments, each department into districts, each district into cantons.

Those are French citizens,

Who are born in France, of a French father;

Who having been born in France of a foreign father, have fixed their residence in the kingdom;

Who having been born in a foreign country, of a French father, have returned to settle in France, and have taken the civic oath:

In fine, who having been born in a foreign country, being descended in whatever degree from a Frenchman or a Frenchwoman, who have left their country from religious motives, come to reside in France, and take the civic oath.

The right of French citizenship is lost,

1st, By naturalization in a foreign country;

2dly, By being condemned to penalties which involve the civic degradation, provided the person condemned be not reinstated;

3dly, By a sentence of contumacy, provided the sentence be not annulled;

4thly, By initiation into any foreign order or body which supposes either proofs of nobility "or distinctions of birth, or requires religious vows."

"The law considers marriage only as a civil contract."

The sovereignty is one, indivisible, "inalienable, and imprescriptible," and it belongs to the nation: no section of the people, or individual, can arrogate the exercise of it.

The nation; from which alone flow all powers, cannot exercise them but by delegation.

The French constitution is representative: the representatives are the legislative body and the king.

The National Assembly, forming the legislative body, is permanent, and consists of one chamber only.

It shall be formed by new elections, every two years.

The legislative body cannot be dissolved by the king.

The number of representatives to the legislative body shall be 745, on account of the 83 departments of which the kingdom is composed; and independent of those that may be granted to the colonies.

The representatives shall be distributed among the 83 departments, according to the three proportions of land, of population, and the contribution direct.

Of the 745 representatives 247 are attached to the land. Of these each department shall nominate three, except the department of Paris, which shall nominate only one.

Two hundred and forty-nine representatives are attached to the population. The total mass of the active population of the kingdom is divided into 249 parts, and each department nominates as many of the deputies as it contains parts of the population.

Two hundred and forty-nine representatives are attached to the contribution direct. The sum total of the direct contribution of the kingdom is likewise divided into 249 parts; and each department nominates as many deputies as it pays parts of the contribution.

In order to form a legislative national assembly, the active citizens shall convene, in primary assemblies, every two years in the cities and cantons.

"The primary assemblies shall meet of full right on the first Sunday of March, if not convoked sooner by the public officers appointed to do so by the law."

To be an active citizen, it is necessary,

To be a Frenchman, or to have become a Frenchman ;

To have attained 25 years complete ;

To have resided in the city or the canton from the time determined by the law ;

To pay in any part of the kingdom a direct contribution, at least equal to the value of three days labour, and to produce the acquittance ;

Not to be in a menial capacity, namely, that of a servant receiving wages ;

To be inscribed in the municipality of the place of his residence in the list of the national guards ;

To have taken the civic oath.

The primary assemblies shall name electors in the proportion of the number of active citizens residing in the city or canton ;

There shall be named one elector to the assembly, or not, according as there shall happen to be present 100 active citizens.

There shall be named two, when there shall be present from 151 to 250, and so on in this proportion.

The electors named in each department shall convene, in order to choose the number of representatives, whose nomination shall belong to their department, and a number of substitutes equal to the third of the representatives.

"The assemblies shall be held of full right on the last Sunday of March, if they have not been before convoked by the public officers appointed to do so by law."

All active citizens, whatever be their state, profession, or contribution, may be chosen representatives of the nation.

Excepting, nevertheless, the ministers and other agents of the executive power, &c.

The members of the legislative body may be re-elected to a subsequent legislature, but not till after an interval of one legislature.

No active citizen can enter or vote in an assembly if he is armed.

The representatives shall meet on the first Monday of May, in the place of the sittings of the last legislature.

The royalty is indivisible, and delegated hereditarily to the race on the throne from male to male, by order of primogeniture, to the perpetual exclusion of women and their descendants.

Nothing is prejudged on the effect of renunciations in the race on the throne.

The person of the king is inviolable and sacred ; his only title is king of the French.

If the king put himself at the head of an army, and direct the forces of it against the nation, or if he do not oppose, by a formal act, any such enterprise undertaken in his name, he shall be held to have abdicated.

If the king having gone out of the kingdom, do not return to it, after an invitation by the legislative body, within the space which shall be fixed by the pro-

clamation, "and which cannot be less than two months," he shall be held to have abdicated the royalty.

After abdication, express or legal, the king shall be in the class of citizens, and may be accused and tried like them, for acts posterior to his abdication.

The nation makes provision for the splendour of the throne by a civil list, of which the legislative body shall fix the sum at the commencement of each reign, for the whole duration of that reign.

The king is a minor till the age of 18 complete ; and during his minority there shall be a regent of the kingdom.

The regency belongs to the relation of the king, next in degree according to the order of succession to the throne, who has attained the age of 25 ; provided he be a Frenchman resident in the kingdom, and not presumptive heir to any other crown, and have previously taken the civic oath.

The presumptive heir shall bear the name of *Prince Royal*.

"The members of the king's family called to the eventual succession of the throne, shall add the denomination of *French Prince* to the name which shall be given them in the civil act proving their birth ; and this name can neither be patronymic nor formed of any of the qualifications abolished by the present constitution."

"The denomination of *prince* cannot be given to any individual, and shall not carry with it any privilege or exception to the common right of all French citizens."

To the king alone belongs the choice and dismissal of ministers.

"The members of the present national assembly, and of the subsequent legislatures, the members of the tribunal of appeal, and those who shall be of the high jury, cannot be advanced to the ministry, cannot receive any place, gift, pension, allowance, or commission of the executive power or its agents during the continuance of their functions, or during two years after ceasing to exercise them : the same shall be observed respecting those who shall only be inscribed on the list of high jurors as long as their inscription shall continue."

No order of the king can be executed if it be not signed by him, and countersigned by the minister or comptroller of the department.

In no case can the written or verbal order of a king shelter a minister from responsibility.

The constitution delegates exclusively to the legislative body the powers and functions following ;

To propose and decree laws—The king can only invite the legislative body to take an object into consideration ;

To fix the public expences ;

To establish the public contributions, to determine the nature of them, the amount of each sort, the duration, and the mode of collection, &c.

War cannot be resolved on but by a decree of the national assembly, passed on the formal and necessary proposition of the king, and sanctioned by him.

During the whole course of war, the legislative body may require the king to negotiate peace ; and the king is bound to yield to this requisition.

It belongs to the legislative body to ratify treaties of peace,

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peace, alliance, and commerce; and no treaty shall have effect but by this ratification.

The deliberations of the legislative body shall be public, and the minutes of the sittings shall be printed.

The legislative body may, however, on any occasion, form itself into a general committee.

The plan of a decree shall be read thrice, at three intervals, the shortest of which cannot be less than eight days.

The decrees of the legislative body are presented to the king, who may refuse them his consent.

In case of a refusal of the royal consent, that refusal is only suspensive. -- When the two following legislatures shall successively present the same decree in the same terms on which it was originally conceived, the king shall be deemed to have given his sanction.

The king is bound to express his consent or refusal to each decree within two months after its presentation.

No decree to which the king has refused his consent can be again presented to him by the same legislature.

The supreme executive power resides exclusively in the hands of the king.

The king is the supreme head of the land and sea forces.

The king names ambassadors, and the other agents of political negotiations.

He bestows the command of armies and fleets, and the ranks of marshal of France and admiral:

He names two-thirds of the rear-admirals, one-half of the lieutenant-generals, camp-marshals, captains of ships, and colonels of the national gendarmerie:

He names a third of the colonels and lieutenant-colonels, and a sixth of the lieutenants of ships:

He appoints in the civil administration of the marine, the directors, the comptrollers, the treasurers of the arsenals, the masters of the works, the under masters of civil buildings, half of the masters of administration, and the under masters of construction.

He appoints the commissaries of the tribunals:

He appoints the superintendants in chief of the management of contributions indirect, "and the administration of national domains:"

He superintends the coinage of money, and appoints officers entrusted with this superintendence in the general commission and the mints.

The effigy of the king is struck on all the coinage of the kingdom.

There is in each department a superior administration, and in each district a subordinate administration.

The administrators are specially charged with distributing the contributions direct, and with superintending the money arising from the contributions, and the public revenues in their territory.

The king has the right of annulling such acts of the administrators of department as are contrary to the law or the orders transmitted to them.

He may, in case of obstinate disobedience, or of their endangering, by their acts, the safety or peace of the public, suspend them from their functions.

The king alone can interfere in foreign political connections.

Every declaration of war shall be made in these terms: *By the king of the French in the name of the nation.*

The judicial power can in no case be exercised either by the legislative body or the king.

Justice shall be gratuitously rendered by judges chosen from time to time by the people, and instituted by letters patent of the king, who cannot refuse them.

"The public accuser shall be nominated by the people."

"The right of citizens to terminate disputes definitively by arbitration, cannot receive any infringement from the acts of the legislative power."

In criminal matters, no citizen can be judged except on an accusation received by jurors, or decreed by the legislative body in the cases in which it belongs to it to prosecute the accusation.

After the accusation shall be admitted, the fact shall be examined, and declared by the jurors.

The person accused shall have the privilege of challenging 20, "without assigning any reason."

The jurors who declare the fact shall not be fewer than 12.

The application of the law shall be made by the judges.

The process shall be public; "and the person accused cannot be denied the aid of counsel."

No man acquitted by a legal jury can be apprehended or accused on account of the same fact.

For the whole kingdom there shall be one tribunal of appeal, established near the legislative body.

A high national court, composed of members of the tribunal of appeal and high jurors, shall take cognizance of the crimes of ministers, and the principal agents of the executive power; and of crimes which attack the general safety of the state, when the legislative body shall pass a decree of accusation.

It shall not assemble but on the proclamation of the legislative body; "and at the distance of 30,000 toises at least from the place of meeting of the legislative body."

The national guards do not form a military body, or an institution in the state; they are the citizens themselves called to assist the public force.

Officers are chosen for a time, and cannot again be chosen till after a certain interval of service as privates.

None shall command the national guard of more than one district.

All the parts of the public force employed for the safety of the state from foreign enemies are under the command of the king.

Public contributions shall be debated and fixed every year by the legislative body, and cannot continue in force longer than the last day of the following session, if they are not expressly renewed.

"Detailed accounts of the expence of the ministerial departments, signed and certified by the ministers or comptrollers-general, shall be printed and published at the commencement of the sessions of each legislature.

"The same shall be done with the statements of the receipt of the different taxes, and all the public revenues."

The French nation renounces the undertaking of any war with a view of making conquests, and will never employ its forces against the liberty of any people.

The constituting national assembly declares, "That the

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the nation has the imprescriptible right of changing its constitution; and nevertheless considering that it is more conformable to the national interest to employ only by means provided in the constitution itself, the right of reforming those articles of it, of which experience shall have shown the inconveniencies, decrees, that the proceeding by an assembly of revision shall be regulated in the form following:

"When three successive legislatures shall have expressed an uniform wish for the change of any constitutional article, the revision demanded shall take place.

"The next legislature, and the following, cannot propose the reform of any constitutional article.

"The fourth legislature, augmented with 249 members, chosen in each department, by doubling the ordinary number which it furnishes in proportion to its population, shall form the assembly of revision."

The French colonies and possessions in Asia, Africa, and America, "though they form part of the French empire," are not included in the present constitution.

With respect to the laws made by the national assembly which are not included in the act of constitution, and those anterior laws which it has not altered, they shall be observed, so long as they shall not be revoked or modified by the legislative power.

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and accepted by the king.
On the 13th of September the King announced, by a letter to the President of the Assembly, his acceptance of the constitution. This event was ordered to be notified to all the foreign courts, and the Assembly decreed a general amnesty with respect to the events of the revolution. On the following day the King repaired in person to the National Assembly; and being conducted to a chair of state prepared for him at the side of the President, he signed the constitutional act, and took an oath of fidelity to it. He then withdrew, and was attended back to the Thuilleries by the whole Assembly, with the President at their head. On the 30th of September, this National Assembly, which has since been known by the name of the *Constituent Assembly*, dissolved itself, and gave place to the succeeding *Legislative National Assembly*, which had been elected according to the rules prescribed by the new constitution.

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character and labours of the constituent assembly.
On the character and the labours of the *Constituent Assembly*, we shall only remark, that it contained many men of talents, and, in all probability, a considerable number of men of integrity. Towards the close of its session, it assumed a very striking character of moderation, and appears to have been completely monarchical, although its jealousy of the ancient aristocracy prevented it from sufficiently guarding the throne against popular violence; for a very striking defect in the new constitution soon appeared. The King possessed a *veto*, or negative, upon the resolutions of the legislative body: but this negative he was bound to exercise in person, without responsibility, and without the intervention of his ministers. He had no senate, or upper chamber, to stand between him and popular violence; and there was something apparently absurd in settling the vote of an individual, in opposition to the collective wisdom and will of a whole nation. In consequence of this, he was reduced to the hard alternative of yielding to every vote of the National Assembly, or of exposing himself personally to public odium.

The new Assembly was opened by the King on the

7th of October, with much apparent union on all sides. His speech, recommending unanimity and confidence between the legislative and executive powers, was received with unbounded applause. The character of the men who composed the new National Assembly was unauuspicious to the Court. At the commencement of the revolution, the great body of the people at a distance from the capital were little interested in those projects of freedom which occupied the more enlightened or more turbulent inhabitants of Paris. They had gradually, however, been roused from their lethargy. The variety of powers conferred by the new constitution upon the people at large, and the multiplicity of offices of which it gave them the patronage, had kindled in the minds of men a love of dominion, and a wish to interfere in public affairs. This attached them to the new order of things. The love of power, which is the least disguised passion in the human heart, and equally strong in the breast of the meanest and of the highest of mankind, was thus, under the name of liberty, become a leading passion throughout this wide empire. They who flattered it most, and were most loud in praise of the rights of the people, became speedily the favourites of the public. The consequence of this was, that the new National Assembly was chiefly composed of country gentlemen, of principles highly democratic, or of men of letters who had published popular books, or conducted periodical publications. The members of the Constituent Assembly had been excluded by their own decree from holding seats in the new legislature.—The members of the latter, therefore, had little regard for a constitution which they themselves had not framed, and which was not protected by the venerable sanction of antiquity.

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When this Assembly first met, it showed a very trifling attention to formalities, and a peevish jealousy of the ministers of the crown. In the mean time, the treaty of Pilnitz, already mentioned, began to be rumoured abroad, and France was thrown into a state of anxious jealousy for the safety of its newly-acquired liberties. Although the Prussians and Germans (the Elector of Mentz alone excepted) all continued to temporize, the northern powers, Sweden and Russia, entered into strict engagements to restore the old despotism of France. On the 9th of November, a decree was passed, that the emigrants who, after the first of January next, should be found assembled, as at present, in a hostile manner, beyond the frontiers, should be considered as guilty of a conspiracy, and suffer death; that the French Princes, and public functionaries, who should not return before that period, should be punishable in the same manner, and their property forfeited during their own lives. On the 18th, a series of severe decrees was also passed against such of the ejected clergy as still refused to take the civic oath. To both these decrees the King opposed his *veto*, or negative.—The moderate party, who were attached to the constitution, rejoiced at this as a proof of the freedom of their sovereign. But, on the other side, it excited a most violent clamour, and became the means of exciting new suspicion of the wishes of the Court. At this time answers were received from the different foreign Courts to the notification sent them of the King's acceptance of the new constitution. These were general-ly conceived in a stile of caution, and avoided giving open
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Pacific answers are received from foreign powers.

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The new assembly opened by the king, and the character of the members.

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Revolution,
1791.

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But the
court is still
suspected.

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The mini-
stry chan-
ged.

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The Feuill-
lans esta-
blished to
oppose the
Jacobin
club.

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State of
France in
the end of
1791 and
beginning
of 1792.

open offence. The Emperor even prohibited all assemblages of emigrants within his states; and the King intimated to the Assembly that he had declared to the Elector of Treves, that unless the emigrants should cease before the 15th of January to make hostile preparations within his territories, he would be considered as the enemy of France. All this, however, did not preserve the court from suspicion; for although the different foreign courts had openly declared pacific intentions, yet the French emigrants boldly asserted, that all Europe was actually arming in their favour. Accordingly they ceased not to solicit their equals in rank, who still remained within the country, to leave it to join with them in what they called the *royal cause*.—The unhappy Louis, placed between a republican party that was gradually gathering strength, and an aristocratical party that was rousing Europe to arms against a nation of which he was the constitutional chief, and a combination of Princes justly suspected of wishing to seize upon a part of his dominions, stood in a situation which would have perplexed the most skilful statesman; and it is no proof of incapacity that he fell a sacrifice to circumstances which might have overwhelmed any known measure of human ingenuity. Addresses were crowding into the Assembly, disapproving the conduct of the court. M. Montmorin resigned; M. Delessart succeeded him; and M. Cahier de Gerville became minister of the interior. M. du Portail resigned also, and M. Narbonne succeeded him as minister of war. In the month of November, M. Bailly's mayoralty terminated; and the once popular La Fayette appeared as a candidate to succeed him. But he was successfully opposed by M. Petion, a violent Jacobin, and a declared republican, who was elected mayor of Paris by a great majority.

At this period the moderate men, who were friends of the constitution, attempted to counteract the influence of the Jacobin club by the establishment of a similar one. It derived its name from the vacant convent of the *Feuillans*, in which it assembled. The most active members of the Constituent Assembly belonged to it, such as M. M. D'Andre, Barnave, the Lameths, Du Port, Rabaud, Sieyes, Chapelier, Thouret, Labord, Taleyrand, Montequieu, Beaumetz, &c. The Jacobins contrived to excite a riot at the place of their meeting, which was in the vicinity of the hall of the National Assembly. This afforded a pretext for applying to the Assembly for the removal of the new club. The Assembly showed their disposition, by complying with this request.

At the end of this year, the kingdom of France was by no means prosperous. The public revenue had fallen far short of the expenditure. The emigrant nobility had carried out of the kingdom the greater part of the current coin, and a variety of manufacturers, who depended upon their ostentatious luxury, were reduced to much distress. The dispositions of foreign courts appeared very doubtful. The new year, however, opened with delusive prospects of tranquillity.—The German Princes appeared satisfied with the mode of compensation which the French had offered for the loss of their possessions in Alsace and Lorraine. The Prince of Lowenstein accepted of an indemnification.—The Princes of Hohenlohé and Salm-Salm declared themselves ready to treat upon the same terms. Prince

Maximilian, and the Dukes of Wirtemberg and Deux-Ponts, freely negotiated. It is unnecessary to state in detail the subtleties employed, in the mean time, by the crafty Leopold, for amusing the French with the appearances of peace. M. Delessart, minister for foreign affairs, fell a sacrifice to them, and probably to the undecided character of Louis. He was accused by M. Brissot of not having given timely notice to the National Assembly of the dispositions of foreign powers, and of not pressing proper measures for securing the honour and safety of the nation. A decree of accusation passed against him in his absence. He was apprehended, tried by the high national court at Orleans, and executed in consequence of its sentence.

The sudden death of Leopold on the first of March gave rise to a transient hope that peace might still be preserved. A suspicion of poison fell upon the French, but it was removed by the detail of his disease that was speedily published. On the 16th of the same month, the King of Sweden was wounded by a nobleman of the name of Ankerstrom, and died on the 29th. This enterprising Prince had overturned the constitution of his own country, and he had formed the project of conducting in person his troops to the frontiers of France, and of commanding or accompanying the combined armies of Europe in their attempt to avenge the cause of insulted royalty. It was in a great measure to counteract this scheme that he was assassinated.

The sudden fall, however, of these two enemies rather accelerated than retarded the meditated hostilities. The young King of Hungary, who succeeded to the empire, made no secret either of his own intentions or of the existence of a *concert of Princes* against France. M. Dumourier was now at the head of the war-office, M. Rolland was minister of the interior, and M. Claviere minister of finance. The Jacobins were all-powerful. The Court gave way to the torrent. The property of the emigrants was confiscated, reserving the rights of creditors. The Imperial minister, Prince Kaunitz, demanded three things of France; 1st, The restitution of their feudal rights to the German Princes; 2^{dly}, To restore Avignon to the Pope, the inhabitants of which had some time before thrown off their allegiance, and prevailed with the Constituent Assembly to receive their country as a part of France; and 3^{dly}, Prince Kaunitz demanded, that "the neighbouring powers should have no reason for apprehension from the present weakness of the internal government of France." On receiving these demands, the king proposed a declaration of war, which was decreed by the National Assembly on the 20th of April, against the *King of Hungary and Bohemia*.

The French immediately began the war, by attacking in three different columns the Austrian Netherlands. M. Theobald Dillon advanced from Lille to Tournay, where he found a strong body of Austrians ready to receive him. The national troops, unaccustomed to sustain the fire of regular soldiers, were instantly thrown into confusion, and fled even to the gates of Lille. The cry of *treason* resounded on all sides; and their commander, an experienced and faithful officer, was murdered by his own soldiers and the mob. A second division of 10,000 men, under Lieutenant-General Biron, took possession of Quivrain on the 29th, and marched towards Mons. General Biron was here attacked by

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The death
of the em-
peror an-
nounced
the king
of Sweden.

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The em-
peror's suc-
cessor pro-
pounds
warlike
intentions.

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And the
Austrian
Nether-
lands are
unsuccess-
fully at-
tacked by
the French.

the

the Austrians, whom he repulsed. Hearing, however, of the defeat of Dillon, he retreated. A third party advanced to Furnes, but afterwards withdrew. La Fayette at the same time advanced towards Bouvines, half way to Namur, from which he afterwards retreated. The whole of these expeditions were ill contrived, in as much as they divided the French undisciplined troops, and exposed them in small bodies to the attack of veteran forces. The Austrians were some time before they attempted to retaliate. At length, however, on the 11th of June, they attacked M. Gouvion, who commanded the advanced guard of La Fayette's army near Maubeuge. M. Gouvion was killed by a rolling bullet; but La Fayette himself having come up, the Austrians abandoned the field. In the mean time, matters were hastening in Paris towards a violent crisis. Two parties, both of which were hostile to the present constitution, had gradually been formed in the state. The one wished to give more effectual support to the royal authority, by establishing a *senate* or *two chambers*, to prevent the king's vote from being the sole check upon popular enthusiasm. The other party wished to set aside royalty altogether, and to hazard the bold experiment of converting France into a republic. These last were supported by the Jacobin club, which had now contrived to concentrate in itself an immense mass of influence. Innumerable popular societies were established in every town and village throughout the provinces. With these a regular correspondence was kept up by writing and by emissaries. Thus schemes and notions were instantaneously propagated through a great empire, and all the violent spirits which it contained were enabled to act in concert: But the more immediate engine of the republican party consisted of the immense population of the metropolis, whom they now endeavoured to keep in constant alarm. For this purpose they alleged, that an *Austrian Committee*, that is to say, a conspiracy in favour of the enemies of the country, existed among the friends of the court. M. M. Gensonné and Brissot even offered in the assembly to prove the existence of this pretended Austrian committee. A report was next circulated, that the king intended to abscond from the capital on the 23d of May. His majesty publicly contradicted these accusations as calumnies, but they made no small impression upon the minds of the public. New decrees were now made against the refractory clergy, but these his majesty refused to sanction. A proposal was also made and decreed in the assembly to form a camp of 20,000 men under the walls of Paris, and that for this levy every canton in the kingdom should contribute one horseman and four infantry. The national guard of Paris disliked the proposal, and the king gave to it his negative. Indeed at this time the king seems to have come to a resolution of standing out against the Jacobin party, to which he had for some time yielded: The ministry were therefore dismissed, excepting M. Dumourier, and others were appointed in their stead. By this event Dumourier lost the confidence of the Jacobin club. He saw his error, resigned his office, and joined the army. In the mean time a decree had been passed, authorising the manufactory of pikes for the purpose of arming cheaply the lower class of citizens. All means were used to render the king odious by inflammatory writ-

tings and harangues; and in both of these the noted incendiary Marat took the lead.

On the 20th of June M. Roederer, the Procureur General Syndic informed the national assembly, that, contrary to law, formidable bodies of armed men were preparing to present petitions to the king, and to the national assembly. A part of them speedily appeared with St Huruge and Santerre a brewer at their head. They marched through the hall in a procession that lasted two hours, at four o'clock in the afternoon, to the number of about 40,000. They surrounded the Thuilleries. The gates were thrown open; and on an attempt to break the door of the apartment, where the king then was, he ordered them to be admitted. His sister the princess Elizabeth never departed from his side during four or five hours that he was surrounded by the multitude, and compelled to listen to every indignity. All this while Petion, the mayor of Paris, was unaccountably absent. He at length, however, arrived, and also a deputation from the assembly. The queen, with her children and the princess de Lamballe, were in the mean time in the council-chamber, where, though protected from violence, they were yet exposed to much insult. At last, in consequence of the approach of evening, and of the entreaties of Petion, the multitude gradually dispersed.

The indignities suffered on this day by the royal family were in some respects not unfavourable to their respectable cause. A great number of the most respectable inhabitants of the capital were ashamed of such proceedings. They complained of them severely in a petition to the assembly, and addresses to the same purpose were received from several departments. The directory of the department of Paris, at the head of which were M. Rochefaucault and M. Tulleyrand, published a declaration disapproving of the conduct of the mayor, and of M. Manuel the procureur of the commune, whom they afterwards suspended from their offices, although they were speedily restored by a decree of the assembly. At the same time, La Fayette leaving his army suddenly, appeared on the 26th at the bar of the national assembly. He declared that he came to express the indignation which the whole army felt on account of the events of the 20th: he called upon the assembly to punish the promoters of these events, and to dissolve the factious clubs. The sudden appearance of La Fayette threw the Jacobins into consternation, and from that period they never ceased to calumniate him.

On the 1st of July, on the motion of M. Jean de Brie, the assembly ordered a proclamation to be made, that the country was in danger. On the 6th, the king gave intimation that the king of Prussia was marching with 52,000 men to co-operate against France. The French arms were at this time somewhat successful in the Austrian Netherlands; but the cabinet speedily thought it necessary to order the armies to retreat: a measure which was afterwards publicly censured by Marshall Luckner.

On the 7th, a singular scene occurred in the national assembly. At the instant that M. Brissot was about to commence an oration, M. Lamourette bishop of Lyons requested to be heard for a few minutes. He expatiated on the necessity of union among the members of the assembly, and of sacrificing their passions and prejudices.

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An armed mob marches through the assembly, surrounds the Thuilleries and insults the royal family.

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The more respectable inhabitants are ashamed of such conduct.

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The king of Prussia marches against France.

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Moderate speech of the bishop of Lyons.

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judices on the altar of their country. He concluded an animated address with these words, "Let all who hold in equal detestation a republic and two chambers, and who wish to maintain the constitution as it is, rise!" The words were scarcely pronounced when the whole assembly started from their seats. Men of all parties solemnly embraced each other, and protested their adherence to the constitution. A deputation announced this happy event to the king; who immediately came and congratulated them in a short speech, which was received with infinite applause. The only good effect, however, produced by this temporary agreement was, that the festival of the 14th of July, which was celebrated with the usual magnificence, passed over in tranquillity.

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Manifesto
of the
duke of
Brunswick

On the 25th of July, the duke of Brunswick issued at Coblenz his celebrated manifesto. It declared the purpose of the intended invasion of France to be the restoration of the French king to full authority. It declared the national guard of France responsible for the preservation of tranquillity; and threatened with the punishment of death, as rebels to their king, those who should appear in arms against the allied powers. All men holding offices, civil or military, were threatened in the same manner, as well as the inhabitants of all cities. The city of Paris in particular, and the national assembly, were declared responsible for every insult which might be offered to the royal family. It was declared, that if they were not immediately placed in safety, the allies were resolved to inflict "on those who should deserve it the most exemplary and ever memorable avenging punishments, by giving up the city of Paris to military execution, and exposing it to total destruction; and the rebels who should be guilty of illegal resistance should suffer the punishments which they should have deserved." This sanguinary and imprudent manifesto operated as a warrant for the destruction of the unfortunate Louis XVI. It left no middle party in the nation. All who wished to preserve freedom in any form, and all who loved the independence of their country, were instantly united. At the same time, the reproaches cast on the king by the Jacobins now gained universal credit. The kings of Prussia and of Hungary told the French nation, that their monarch was secretly hostile to the constitution; and the restoration of him and his family to despotic power was made the sole pretence for a bloody and dangerous war.

117
Injurious to
Louis,

118
But advantageous to
the republican party,
who resolve to de-
pose him.

The republican party saw the advantage which they had now gained, and resolved upon the deposition of the king. The chief engine which they meant to employ in this service consisted of about 1500 men, who had come to Paris at the period of the confederation on the 14th of July, and therefore called *federés*, and who were also sometimes denominated *Marfeillois*, from the place from which the greater number of them came. Next to these, dependence was placed in the populace of the suburbs of the capital. The designs of the republicans were not unknown to the court, and both parties were forming plans of operation. It is said that the royal party intended that the king and his family should suddenly leave the capital, and proceed to as great a distance as the constitution permitted. The republicans are said to have intended to seize the person of the king, and to confine him in the castle of Vincennes till a national convention should decide upon his

fate. Both allegations are probably true. Every motive which can influence the mind of man must have induced Louis to wish to be at a distance from the factious and sanguinary capital. And the subsequent conduct of the republicans authorise us to believe them capable of the worst crime that was laid to their charge.

Various charges had been brought forward in the assembly against La Fayette, and the 8th of August was appointed for their discussion. In the mean time, on the 3d of August, Petion the mayor, at the head of a deputation from the sections of Paris, appeared at the bar, and in a solemn speech demanded the deposition of the king. The discussion of the accusation against La Fayette was considered as a trial of strength between the parties: he was acquitted, however, by a majority of nearly 200; and the republican party, despairing of carrying their point by a vote of the national assembly, resolved to have recourse to insurrection and force.

On the evening of the 9th of August, about 1500 gentlemen, officers of the army, and others, repaired to the palace, resolved to protect the royal family or to die in their defence: added to these were 700 Swiss guards, with a body of cavalry amounting to about 1000. Mandat, the commander of the national guards, a man who was firmly attached to the constitution, had procured 2400 of that body and 12 pieces of cannon. With such a force, it has been generally thought that, by vigorous and steady councils, the palace, which is a kind of castle, might have been successfully defended; and what is now called a revolution might have born the name of a rebellion. Meanwhile the assembly declared its sittings permanent. Petion was at the palace late on the evening of the 9th. Some apprehensions were entertained, or pretended to be entertained, for his safety (for the whole of this business was, on the part of the republicans, the most infernal plot), and a deputation from the assembly brought him away. At midnight the tocsin or alarm bell was sounded, and the drums beat to arms through the city. At this instant a number of the most active leaders of the republican party assembled, and elected a new common council or *commune*. The persons thus irregularly chosen instantly took possession of the common hall, and drove out the lawful members; who, with that weakness with which men are apt to shrink from stations of responsibility in perilous times, readily gave place to the usurpers. The new commune sent repeated messages to M. Mandat, requiring his attendance upon important business. He was occupied in arranging the troops in the best order around the palace; but suspecting nothing, he went to the common hall, and was there astonished to find a different assembly from what he expected. He was abruptly accused of a plot to massacre the people, and ordered to prison; but as he descended the stairs, he was shot with a pistol, and Santerre was appointed in his stead to command the national guard.

On this eventful night no person in the palace went to bed. About six o'clock in the morning of the 10th the king descended into the gardens to review the troops. He was received with shouts of *Vive le roi* excepting from the artillery, who shouted *Vive la nation*. The king returned to the palace, and the multitude continued to collect. The national guard seemed undetermined about what they were to do, as they assembled in divisions near the palace; and had a steady resistance

French
Rev. Aut.
1792.

119
La Fayette
accused
acquitted

120
Horrid plot
of the re-
publicans

instance been made from within, it is probable they would have joined the royal party. But towards eight o'clock M. Roederer procured admittance to the palace, and told the king that armed multitudes were assembling in hostile array around the Thuilleries; that the national guard was not to be depended upon; and that, in case of resistance, the whole royal family would most certainly be massacred. He therefore advised the king to seek protection in the hall of the national assembly. With this advice the king, with his usual facility of temper, was ready to comply; but the queen opposed with vehemence the humiliating proposal. Becoming gradually, however, alarmed for the safety of her children, she gave her consent; and the king and queen, the princess Elizabeth, with the prince and princess royal, went on foot to the hall of the assembly. "I am come hither (said his majesty) to prevent a great crime. Among you, gentlemen, I believe myself in safety." By an article of the constitution the assembly could not deliberate in presence of the king. The royal family were, therefore, placed in a narrow box separated from the hall by a railing, where they remained for 14 hours without any place to which they could retire for refreshment, excepting a very small closet adjoining. Here they sat listening to debates, in which the royal character and office were treated with every mark of insult.

When the king left the palace of the Thuilleries, he unfortunately forgot to order it to be immediately surrendered. He recollected this as soon as he reached the assembly, and sent orders for this purpose; but it was now too late. The insurgents amounted to about 20,000 effective men. They were drawn up in tolerable order by Westerman a Prussian, and had about 30 pieces of cannon along with them. The gentlemen within the palace, who had assembled to protect the king's person, were now dispirited, and knew not what part to act. The commander of the Swis, M. Affry, was absent, and the captains knew not what to do; and the national guard had no leader in consequence of the death of Mandat. About nine o'clock the outer gates were forced open; and the insurgents formed their line in front of the palace. A bloody combat commenced chiefly between the Marseillois and the Swis. After a brave resistance of about an hour, the Swis were overpowered by numbers, and gave way. All of them that could be found in the palace were massacred; some even while imploring quarter on their knees. Others escaped into the city, and were protected by individuals. Of this brave regiment, however, only 200 survived; but every human being, even the lowest servants found in the palace, were put to death. The Swis taken prisoners in various quarters were conducted to the door of the assembly, and taken by a decree under the protection of the state. But the sanguinary multitude insisted upon putting them to instant death; and the assembly would, in all probability, have been unable to protect them, had not the Marseillois interfered in their favour.

The suspension of the royal authority was now decreed, and the nation was invited to elect a *Convention* to determine the nature of its future government. On this uncommon occasion all Frenchmen of 21 years of age were declared capable of electing, and of being elected, deputies to the new national Convention. Com-

missioners were, in the mean time, sent on the same evening to give to the armies a false and favourable account of these transactions. The royal family were sent to the old palace of the Temple in the midst of the city, to remain there under a strict guard; and all persons of rank who had been attached to them were seized and committed to the different prisons.

To give an idea of the temper of the people of Paris at this time, it is proper to remark, that at the same instant when the multitude with bloody fury were massacring the menial servants in the palace, and could scarcely be restrained from offering violence to the Swis who were made prisoners, they would suffer no act of pillage to pass unpunished. Several attempts of this kind were accordingly followed by the instant death of the criminals. The plate, the jewels, and money found in the Thuilleries were brought to the national assembly, and thrown down in the hall. One man, whose dress and appearance bespoke extreme poverty, cast upon the table an hat full of gold.—But the minds of these men were elevated by enthusiasm; and they conceived themselves as at this moment the champions of freedom, and objects of terror to the kings of the earth.

In the mean time, the situation of France was extremely critical, and it appeared very doubtful if the new Convention would ever be suffered to assemble. La Fayette had accidentally got speedy notice of the events of the 10th of August. He advised the magistrates of the town of Sedan to imprison the commissioners from the national assembly when they should arrive there; which was accordingly done. He, at the same time, published an address to his army, calling upon them to support the king and the constitution; but finding that they were not to be depended upon, on the 19th August he left his camp in the night, accompanied only by his staff and a few servants. They took the rout of Rochefort in Liege, which was a neutral country; but were met by a party of the enemy, who took them prisoners, and they were detained in Prussian and Austrian dungeons till autumn 1794, when it is said that La Fayette himself made his escape. The severe treatment of this man was probably a considerable error in policy on the part of the allies. His fidelity to his king is very generally admitted; though some have entertained strong suspicions of his having acted a very base part to that unfortunate monarch; and in the British house of commons he has been called an abandoned ruffian. This expression is certainly too strong. His errors seem to have been those of the head rather than of the heart; and at all events, he should have been protected by the allies if for no other reason than to encourage subsequent desertions among the officers of the republican army.

To return from this digression. The commissioners were soon set at liberty at Sedan, and received with applause by the army of La Fayette. General Arthur Dillon at first entered into the sentiments of La Fayette; but the politic Dumourier diverted him from his purpose, and by this means regained his credit with the Jacobins, and was appointed commander in chief. The other generals, Biron, Montesquieu, Kellerman, and Custine, made no opposition to the will of the national assembly.

Meanwhile, the combined armies of Austria and Prussia had entered France. The duke of Brunswick's

French
Revolution,
1792.

124
Bloody
temper of
the people
of Paris,
&c.

125
Critical si-
tuation of
the whole
kingdom.

126
La Fayette
withdraws
from the
army.—His
fate and
character.

French
Revolution,
1792.

127
The combi-
ned armies
enter
France in
great force.

French army was above 50,000 strong. General Clairfait had joined him with 15,000 Austrians, and a considerable body of Hessians, along with 20,000 French emigrants; amounting in all to 90,000 men. To oppose these, Dumourier had only 17,000 men collected near the point from which the enemy were approaching in Luxembourg. The French emigrants had given the duke of Brunswick such an account of the distracted state of their own country, and of the pretended disaffection of all orders of men towards the ruling faction in Paris, that no resistance of any importance was expected. When the combined troops, consisting either of steady Austrian or Hungarian battalions, or of those well disciplined Prussians which the great Frederick had inured to the best military discipline, were reviewed in Germany before setting out on their march, it is said that the spectators, among whom the French cause was not unpopular, beheld them with anxiety and regret, and pitied the unhappy country against which this irresistible force was directed. The soldiers and their officers regarded themselves as departing for a hunting match, or an excursion of pleasure; and many of the usual accommodations of an army were ill attended to, such as hospitals, &c. The beginning of their progress into France justified these expectations. Longwy surrendered after a siege of 15 hours, although well fortified, possessed of a garrison of 3500 men, and defended by 71 pieces of cannon. The news of this event irritated the assembly so much, that they decreed, that, when retaken, the houses of the citizens should be razed to the ground; and, distrustful of the officers of the army, they decreed that the municipal officers of a town should hereafter have power to controul the deliberations of the council of war. Verdun was next summoned; and here the municipality compelled the governor M. Beaurepiere to surrender. That officer, disappointed and enraged, shot himself dead with a pistol in presence of the council, and on the 2d of September the Prussian troops entered the town.

128
Alarm at
Paris on
account of
their suc-
cess.

The news of this second capture, and of the approach of the Prussians, spread an instant alarm through Paris. It was proposed to raise a volunteer army, which should set out immediately to meet the enemy. The common council, which was now led by Robespierre, Danton, Marat, and others of the most sanguinary character, ordered the alarm-guns to be fired, and the populace to be summoned to meet in the Champ de Mars to enroll themselves to march against the enemy. The people assembled, and either in consequence of a premeditated plan, or, which is not very probable, of an instantaneous movement, a number of voices exclaimed, that "the domestic foes of the nation ought to be destroyed before its foreign enemies were attacked."

129
Horrid
massacres.

Parties of armed men proceeded without delay to the prisons where the non-juring clergy, the Swiss officers, and those confined since the 10th of August on account of practices against the state, were detained in custody. They took out the prisoners one by one, gave them a kind of mock trial before a jury of themselves, acquitted some few, and murdered the rest. Among these last was the princess de Lamballe. She was taken from her bed before this bloody tribunal, and massacred; her head was carried by the populace to the Temple, to be seen by the queen, whose friend she was.

These massacres lasted for two days, and upwards of 1000 persons were put to death. There is scarce any thing in history that can be represented as parallel to them; they were committed, it is said, by less than 300 men, in the midst of an immense city, which heard of them with horror, and in the vicinity of the national assembly, which, by going in a body, could have put an end to them. But such was the confusion and dismay of these two disgraceful days, that no man dared to stir from his own house; and every one believed that the whole city, excepting his own street, was engaged in massacre and bloodshed. The national guards were all ready at their respective posts, but no man directed them to act; and there is too much reason to suspect that Santerre and the chiefs of the commune connived, at least, at the transaction.

In the mean time, general Dumourier was taking the best measures to protract the march of the enemy till the army of Kellerman, consisting of 20,000 men, could join him from Lorraine, and that of Bournonville from Flanders, amounting to 13,000; together with whatever new levies Luckner might be able to send him from Chalons. The forest of Argonne extends from north to south upwards of 40 miles; it lay directly in the route of the duke of Brunswick, who must either force his way across it, or make a circuit of 40 miles by the pass of Grandpré on the north, or by Barleduc on the south. The pass that lay directly in his route was that of Biesme. After surveying Dillon's position here, he left a party of 20,000 men to watch it; and with the main body of his army took the circuitous rout by Grandpré on the north. Here Dumourier waited to receive him, and was attacked on the 12th and 13th without success: but on the 14th, the attack of the Prussians was irresistible, and Dumourier retreating, gave up the pass. On his march he was violently pressed by the advanced cavalry of the Prussians, that his army, at one time, was seized with a panic, and fled before 1500 men; who, if they had pushed their advantage, might have dispersed it. On the 15th, however, Dumourier encamped at St Menchould, and began to fortify it. Bournonville's army joined Dumourier on the 17th. The duke of Brunswick formed a plan of attacking Kellerman before his junction could be completed. That general arrived on the 19th within a mile of Dumourier's camp; the projected attack took place; the Prussians manœuvred with their usual coolness and address; they attempted to surround Kellerman's army, but this could not be accomplished. The French troops preserved excellent order, while the national vivacity was constantly showing itself in their shouts and patriotic songs: 400 French were killed, and 500 wounded; the loss of the Prussians was much greater; and, in the face of the enemy, Kellerman joined Dumourier at the end of the engagement without opposition. At the time that the attack was made on the army of Kellerman, an attempt was made to force Dillon's camp at Biesme by the 20,000 men that had been left in its vicinity, but without success; and this large detachment was thus prevented from crossing the forest of Argonne and joining the duke of Brunswick. It is to be observed, that in these engagements the French owed their superiority chiefly to the excellence of their artillery; a circumstance which served to convince their enemies that they

had to contend with regular military bodies, and not with undisciplined multitudes, as they expected.

The duke of Brunswick encamped his army at La Lun, near the camp of Dumourier. And here the Prussians began to be in extreme distress both from sickness and famine. No temptation could induce the inhabitants of the country to carry provisions to the hostile camp, while at the same time the French army was abundantly supplied.

Bournonville, with a body of 4000 men, intercepted several droves of cattle and other convoys of provisions destined for the Prussians. The rain fell in torrents, and the roads were uncommonly deep. Exposed to the cold, the moisture, and want of provisions, the Prussians rashly ate great quantities of the grapes of Champagne. The consequence of this was, that an epidemical distemper commenced and spread through the army to such an extent, that 10,000 men at one time were unfit for duty. The duke of Brunswick, however, still commanded a force much more numerous than that of Dumourier; and he has been much censured for not attacking his camp, and forcing him to engage. It has been said, that the veteran and numerous force which he commanded would have marched to certain victory against the raw troops that opposed them; that, having defeated Dumourier's army, there was nothing to oppose their march to Paris. But the duke of Brunswick had entered France upon the supposition, that in its present distracted state no regular army could be brought into the field against him, and that the people at large were hostile to the ruling faction. The contrary of all this had turned out to be true. He found himself in the midst of an hostile people, and opposed by skilful military chiefs. A defeat in such a situation would have brought certain ruin to his army; and even the loss sustained in the acquisition of a victory might have proved equally fatal. The remains of the French army would not fail to hang upon his rear; and from the disposition of the people it appeared impossible to ascertain to what amount that army might be suddenly increased. After proposing a truce, therefore, which lasted eight days, he commenced his retreat towards Grandpré, and no advantage was gained over him in the course of it. Verdun was retaken by the French on the 12th of October, and Longwy on the 18th; the siege of Thionville was at the same time raised. That small, but strong fortress, under the command of general Felix Wimpfen, had held in check an army of 15,000 men.

While the Prussians were advancing from the north-east, the Austrians under the duke of Saxe Tefchen laid siege to Lisle. The council-general of the commune answered the summons of the besiegers thus, "We have just renewed our oath to be faithful to the nation, and to maintain liberty and equality, or to die at our post. We will not perjure ourselves." Such was the cant of these men who had already perjured themselves by contributing to overturn the constitution which they had repeatedly sworn to defend. The Austrian batteries began to play upon the town on the 29th, and were chiefly directed against that quarter which was inhabited by the lower class of citizens, for the purpose of making them mutinous and seditious. This procedure was ill judged. The lower classes of mankind are always much accustomed to hardships, and they go farthest in

support of any enthusiastic principle they have been persuaded to adopt. Accordingly, though a great part of the city was reduced to a heap of ruins, the citizens of Lisle became daily more obstinate. They received each other into the houses that were still standing, and every vault and cellar was occupied. Although upwards of 30,000 red-hot balls and 6000 bombs were thrown into the city, besides the efforts made by an immense battering train of artillery, yet the loss both to the garrison and people did not exceed 500 persons, most of whom were women and children. After a fortnight of fruitless labour the Austrians raised the siege.

War had been declared against the king of Sardinia on account of the threatening appearances exhibited in that quarter. On the 20th of September general Montesquieu entered the territories of Savoy, and was received at Chambéry and throughout the whole country with marks of unbounded welcome. On the 29th general Anselm, with another body of troops, took possession of Nice and the country around it. On the 30th general Custine advanced to Spire, when he found the Austrians drawn up in order of battle. He attacked and drove them through the city, taking 3000 of them prisoners. The capture of Worms succeeded that of Spire; Mentz surrendered by capitulation; and Frankfort fell into the hands of the French on the 23d. Out of this last place, however, they were afterwards driven on the 2d of December.

On the 20th of September the French National Convention assembled. It was found to contain men of all characters, orders, and ranks. Many distinguished members of the *Constituting Assembly* were elected into it, and also several that had belonged to the *Legislative Assembly*; even foreigners were invited to become French legislators. The famous Thomas Paine and Dr Priestley of England were elected by certain departments; but the latter declined accepting. Clouts a Prussian, whom we formerly noticed as bringing a deputation to the bar of the constituent assembly, consisting of persons representing all the nations of the earth, was also chosen. The general aspect of the new convention showed that the republican party had acquired a decided superiority. On the first day of meeting M. Collot D'Herbois, who had formerly been an actor, ascended the tribune, and proposed the *eternal abolition of royalty in France*. The question was carried by acclamation, and the house adjourned. Messages were sent to all parts of the country to intimate the decree, and by the influence of the Jacobins they were everywhere received with applause. It was next day decreed, that all public acts should be dated by the year of the French republic; and all citizens were declared eligible to all the vacant offices and places. The rage of republicanism soon went so far, that the ordinary titles of Monsieur and Madame were abolished, and the appellation of *Citizen* substituted in their stead, as more suitable to the principles of liberty and equality.—It may be remarked, that in this last trifling circumstance an attachment to the form of speech to which they had been accustomed appears even in its abolition: For, although the Roman orators addressed their countrymen when assembled by the honourable appellation of *Citizens*, yet they never, in addressing an individual, called him Citizen Cato, or Citizen Cæsar, according to the mode now adopted in France.

French Revolution, 1792.

134 War declared against the king of Sardinia, Savoy taken, &c.

135 The national convention assembled.

136 And decrees the eternal abolition of royalty in France.

French
Revolution,
1792.
137
Two op-
posite fac-
tions in the
convention.

It was soon discovered that the leading republicans had divided into two opposite factions. The one of these was called *Gironde*, because Vergniaud, Gensonné, Guadet, and some others of its leaders, were members from the department of La Gironde. The celebrated Condorcet belonged to this party; and they were sometimes denominated *Brissotines*, from M. Brissot de Warville their principal leader. They supported the ministry now in office, at the head of which was Roland; and the majority of the convention was obviously attached to them. In opposition to these was the smaller party of the *Mountain*; so called from its members usually sitting in the convention on the upper seats of the hall. They were men possessed of less personal respectability, and fewer literary accomplishments, but of daring and sanguinary characters, whom the revolution had brought into public notice. At the head of this party were Danton and Robespierre; and subordinate to these were Couthon, Bazire, Thuriot, Merlin de Thionville, St André, Camille Demoulins, Chabot, Collot D'Herbois, Sergent, Legendre, Fabre D'Eglantine, Panis, and Marat.

These two parties showed the diversity of their characters in the manner in which they treated the massacres of the 2d and 3d of September. The Brissotines, with the majority of the convention, wished to bring the murderers to trial; but the question was always eluded by the other party, with the assistance of the Jacobin club and of the populace.

138
Decree a-
gainst the
emigrants,
&c.

On the 9th of October it was decreed, that all emigrants, when taken, should suffer death; and on the 15th of November, in consequence of an insurrection in the duchy of Deux Ponts, and an application on the part of the insurgents to the convention for aid, the following decree was passed: "The national convention declare, in the name of the French nation, that they will grant fraternity and assistance to all those people who wish to procure liberty; and they charge the executive power to send orders to the generals to give assistance to such people as have suffered, or are now suffering, in the cause of liberty." Of this decree foreign nations, with great reason, complained much, as will shortly appear.

139
Battle of
Jemappe,
and surren-
der of the
Austrian
Nether-
lands.

To return to the military affairs of the new republic. On the 12th of October General Dumourier came to Paris, and was speedily sent to commence a winter campaign in the Netherlands. He suddenly attacked the Austrians at the village of Bossu, and drove them from their ground. On the 5th of November he came in sight of the enemy upon the heights of *Jemappe*. Three rows of fortifications arose above each other defended by 100 pieces of cannon. Their right was covered by the village and a river, and their left by thick woods. The French were by their own account 30,000, whilst others with great probability of truth compute them at double that number, and the number of the Austrians was at least 20,000. At seven in the morning of the following day a heavy cannonade commenced on both sides, and at noon a close attack was determined on by the French, whose right wing was commanded by Generals Bournonville and Dampierre, and the centre by Generals Egalité (son to the duke of Orleans who had assumed that name), Stetenboffe, Despolets, and Drouet. The music played the popular march of the Marseillois, and the soldiers rushed on with enthusiasm, shouting "Vive la nation." The en-

gagement was warm and bloody; the French were twice repulsed; but their impetuosity was at last irresistible, and about two o'clock the enemy fled from their last entrenchments. The loss on both sides was very great, that of the Austrians amounting to 4000. This victory was decisive of the fate of the Netherlands. Mons and Brussels surrendered to Dumourier; Tournay, Malines, Ghent, and Antwerp, were taken possession of by General Labourdonnaye; Louvain and Namur were taken by General Valence; and the whole Austrian Netherlands, Luxembourg only excepted, fell into the hands of the French: Liege was taken on the 28th of November after a successful engagement, in which the Austrians lost 5 or 600 men and an immense train of artillery.

France was now in a situation not unusual in the history of those nations that either are free, or are attempting to become so; successful in all quarters abroad, but distracted by factions at home. The two parties in the convention were engaged in a struggle, which daily became more implacable. The party called the *Mountain* did not hesitate about the nature of the means they were to employ to bring about the ruin of their antagonists. They are even suspected of having, through the medium of Pache the war-minister, retarded the supply of the armies, to render the ruling party odious by want of success. They were for some time, however, unfortunate in this respect; and the daily news of victories supported with the public the credit of the Girondists. A new subject was therefore fallen upon, which was the question, how the dethroned king was to be disposed of? The moderate party wished to save him; and this was a sufficient reason for their antagonists to resolve upon his ruin. A committee was appointed to give in a report upon his conduct. A variety of accusations were brought against him; and the convention infamously resolved to act the part of accusers and of judges.

It was on the 11th of December when the ill-fated monarch was ordered to the bar of the convention: the act of accusation was read, and the king was summoned by the president, Barrere, to answer to each separate charge.

Pres. "Louis, the French nation accuses you of having committed a multitude of crimes to establish your tyranny, in destroying her freedom. You, on the 20th of June 1789, attempted the sovereignty of the people, by suspending the assemblies of their representatives, and expelling them with violence from the places of their sittings. This is proved in the process verbal entered at the Tennis-court of Versailles by the members of the constituent assembly. On the 23d of June you wanted to dictate laws to the nation; you surrounded their representatives with troops; you presented to them two royal declarations, subversive of all liberty, and ordered them to separate. Your own declarations, and the minutes of the assembly, prove these attempts. What have you to answer?"

Louis. "No laws were then existing to prevent me from it."

Pres. "You ordered an army to march against the citizens of Paris. Your satellites have shed the blood of several of them, and you would not remove this army till the taking of the Bastille and a general insurrection announced to you that the people were victorious. The

speeches

French
Revolut.
1792.

140
Violent
contests
between
Girondins
and the
Mountain

141
The king
brought
to trial.

speeches you made on the 9th, 12th, and 14th of July to the deputations of the constituent assembly, shew what were your intentions; and the massacres of the Thuilleries rise in evidence against you.—What have you to answer?"

Louis. "I was master at that time to order the troops to march; but I never had an intention of shedding blood."

Pres. "After these events, and in spite of the promises which you made on the 15th in the constituent assembly, and on the 17th in the town-house of Paris, you have persisted in your projects against national liberty. You long eluded the execution of the decrees of the 11th of August, respecting the abolition of personal servitude, the feudal government, and tythes: you long refused acknowledging the rights of man: you doubled the number of the life-guards, and called the regiment of Flanders to Versailles: you permitted, in orgies held before your eyes, the national cockade to be trampled under foot, the white cockade to be hoisted, and the nation to be slandered. At last, you rendered necessary a fresh insurrection, occasioned the death of several citizens, and did not change your language till after your guards had been defeated, when you renewed your perfidious promises. The proofs of these facts are in your observations of the 18th of September, in the decrees of the 11th of August, in the minutes of the constituent assembly, in the events of Versailles of the 5th and 6th of October, and in the conversation you had on the same day with a deputation of the constituent assembly, when you told them you would enlighten yourself with their councils, and never recede from them.—What have you to answer?"

Louis. "I have made the observations which I thought just on the two first heads. As to the cockade, it is false; it did not happen in my presence."

Pres. "You took an oath at the federation of the 14th of July, which you did not keep. You soon tried to corrupt the public opinion, with the assistance of Talon who acted in Paris, and Mirabeau who was to have excited counter-revolutionary movements in the provinces.—What have you to answer?"

Louis. "I do not know what happened at that time; but the whole is anterior to my acceptance of the constitution."

Pres. "You lavished millions of money to effect this corruption, and you would even use popularity as a means of enslaving the people. These facts are the result of a memorial of Talon, on which you have made your marginal comments in your own hand-writing, and of a letter which Laporte wrote to you on the 19th of April; in which, recapitulating a conversation he had with Rivarol, he told you, that the millions which you had been prevailed upon to throw away had been productive of nothing. For a long time you had meditated on a plan of escape. A memorial was delivered to you on the 28th of February, which pointed out the means for you to effect it; you approve of it by marginal notes.—What have you to answer?"

Louis. "I felt no greater pleasure than that of relieving the needy: this proves no design."

Pres. "On the 28th a great number of the nobles and military came into your apartments in the castle of the Thuilleries to favour that escape: you wanted to

quit Paris on the 10th of April to go to St Cloud.—What have you to answer?"

Louis. "This accusation is absurd."

Pres. "But the resistance of the citizens made you sensible that their distrust was great; you endeavoured to discard it by communicating to the constituent assembly a letter, which you addressed to the agents of the nation near foreign powers, to announce to them that you had freely accepted the constitutional articles, which had been presented to you; and, notwithstanding, on the 21st you took flight with a false passport. You left behind a protest against these self-same constitutional articles; you ordered the ministers to sign none of the acts issued by the National Assembly; and you forbade the minister of justice to deliver up the seals of state. The public money was lavished to insure the success of this treachery, and the public force was to protect it, under the orders of Bouillé, who shortly before had been charged with the massacre of Nancy, and to whom you wrote on this head, "to take care of his popularity, because it would be of service to you." These facts are proved by the memorial of the 23d of February, with marginal comments in your own hand-writing; by your declaration of the 20th of June, wholly in your own hand-writing; by your letter of the 4th of September 1790 to Bouillé; and by a note of the latter, in which he gives you an account of the use he made of 993,000 livres, given by you, and employed partly in trepanning the troops who were to escort you.—What have you to answer?"

Louis. "I have no knowledge whatever of the memorial of the 23d of February. As to what relates to my journey to Varennes, I appeal to my declaration to the commissaries of the constituent assembly at that period."

Pres. "After your detention at Varennes, the exercise of the executive power was for a moment suspended in your hands, and you again formed a conspiracy. On the 17th of July the blood of citizens was shed in the Champ de Mars. A letter, in your own hand-writing, written in 1790 to La Fayette, proves that a criminal coalition subsisted between you and La Fayette, to which Mirabeau acceded. The revision began under these cruel auspices; all kinds of corruptions were made use of. You have paid for libels, pamphlets, and newspapers, designed to corrupt the public opinion, to discredit the assignats, and to support the cause of the emigrants. The registers of Septeuil shew what immense sums have been made use of in these liberticide manoeuvres.—What have you to answer?"

Louis. "What happened on the 17th of July has nothing at all to do with me. I know nothing of it."

Pres. "You seemed to accept the constitution on the 14th of September; your speeches announced an intention of supporting it, and you were busy in overturning it, even before it was completed. A convention was entered into at Pilnitz on the 24th of July, between Leopold of Austria and Frederic-William of Brandenburg, who pledged themselves to re-erect in France the throne of absolute monarchy, and you were silent upon this convention till the moment when it was known by all Europe.—What have you to answer?"

Louis. "I made it known as soon as it came to my knowledge; besides, every thing that refers to this subject concerns the minister."

Pres.

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Pref. "Arles had hoisted the standard of rebellion; you favoured it by sending three civil commissaries, who made it their business not to repress the counter-revolutionists, but to justify their proceedings.—What have you to answer?"

Louis. "The instructions which were given to the commissaries must prove what was their mission; and I knew none of them when the ministers proposed them to me."

Pref. "Avignon, and the county of Venaissin, had been united with France; you caused the decree to be executed; but a month after that time civil war desolated that country. The commissaries you sent thither helped to ravage it.—What have you to answer?"

Louis. "I do not remember what delay has been caused in the execution of the decree; besides, this occurrence has no personal reference to me; it only concerns those that have been sent, not those who sent them."

Pref. "Nîmes, Montauban, Mende, Jales, felt great shocks during the first days of freedom. You did nothing to stifle those germs of counter-revolution till the moment when Saillant's conspiracy became manifestly notorious.—What have you to answer?"

Louis. "I gave, in this respect, all the orders which were proposed to me by the ministers."

Pref. "You sent 22 battalions against the Marseillais, who marched to reduce the counter-revolutionists of Arles.—What have you to answer?"

Louis. "I ought to have the pieces referring to this matter, to give a just answer."

Pref. "You gave the southern command to Wittenstein, who wrote to you on the 21st of April 1792, after he had been recalled: 'A few instants more, and I shall call around the throne of your Majesty thousands of French, who are again become worthy of the wishes you form for their happiness.'—What have you to answer?"

Louis. "This letter is dated since his recall; he has not been employed since. I do not recollect this letter."

Pref. "You paid your late life-guards at Coblenz; the registers of Septeuil attest this; and general orders signed by you prove that you sent considerable remittances to Bouille, Rochefort, Vauguyon, Choiseul, Beaupre, Hamilton, and the wife of Polignac.—What have you to answer?"

Louis. "When I first learned that my life-guards assembled beyond the Rhine, I stopped their pay: as to the rest, I do not remember?"

Pref. "Your brothers, enemies to the state, caused the emigrants to rally under their banners: they raised regiments, took up loans, and concluded alliances in your name: you did not disclaim them; but at the moment when you were fully certain that you could no longer cross their projects, your intelligence with them by a note, written by Louis Stanislaus Xavier, signed by your two brothers, was conceived in these words:

"I wrote to you, but it was by post, and I could say nothing. We are two here, who make but one; one in sentiments, one in principles, one in zeal of serving you. We keep silence; because, were we to break it too soon, it would injure you: but we shall speak as soon as we shall be certain of general support, and that moment is near. If we are spoken to on the

part of those people, we shall hear nothing; but if on your part, we will listen: we shall pursue our road straight. It is therefore desired that you will enable us to say something. Do not stand on ceremonies. Be easy about your safety: we only exist to serve you; we are eagerly occupied with this point, and all goes on well; even our enemies feel themselves too much interested in your preservation to commit an useless crime which would terminate in their own destruction. Adieu.

"L. S. XAVIER and
"CHARLES PHILIPPE."

"What have you to answer?"

Louis. "I disowned all the proceedings of my brothers, according as the constitution prescribed me to do, and from the moment they came to my knowledge. Of this note I know nothing."

Pref. "The soldiers of the line, who were to be put on the war establishment, consisted but of 100,000 men at the end of December, you therefore neglected to provide for the safety of the state from abroad. Narbonne required a levy of 50,000 men, but he stopped the recruiting at 26,000, in giving assurances that all was ready; yet there was no truth in these assurances. Servan proposed after him to form a camp of 20,000 men near Paris; it was decreed by the legislative assembly; you refused your sanction.—What have you to answer?"

Louis. "I had given to the ministers all the orders for expediting the augmentation of the army: in the month of December last, the returns were laid before the Assembly. If they deceived themselves, it is not my fault."

Pref. "A flight of patriotism made the citizens repair to Paris from all quarters. You issued a proclamation, tending to stop their march; at the same time our camps were without soldiers. Dumourier, the successor of Servan, declared that the nation had neither arms, ammunition, nor provisions, and that the posts were left defenceless. You waited to be urged by a request made to the minister Lajard, when the legislative assembly wished to point out the means of providing for the external safety of the state, by proposing the levy of 42 battalions. You gave commission to the commanders of the troops to disband the army, to force whole regiments to desert, and to make them pass the Rhine, to put them at the disposal of your brothers, and of Leopold of Austria, with whom you had intelligence. This fact is proved by the letter of Toulougeon, governor of Franche Comté.—What have you to answer?"

Louis. "I know nothing of this circumstance; there is not a word of truth in this charge."

Pref. "You charged your diplomatical agents to favour this coalition of foreign powers and your brothers against France, and especially to cement the peace between Turkey and Austria, and to procure thereby a larger number of troops against France from the latter. A letter of Choiseul-Gouffier, ambassador at Constantinople, verifies the fact.—What have you to answer?"

Louis. "M. Choiseul did not speak the truth: no such thing has ever been."

Pref. "The Prussians advanced against our frontiers: your minister was summoned on the 8th of July to give an account of the state of our political relations with

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with Prussia; you answered, on the 10th, that 50,000 Prussians were marching against us, and that you gave notice to the legislative body of the formal acts of the pending hostilities, in conformity to the constitution.—What have you to answer?"

Louis. "It was only at that period I had knowledge of it: all the correspondence passed with the ministers."

Pref. "You entrusted Dabancourt, the nephew of Calonne, with the department of war; and such has been the success of your conspiracy, that the posts of Longwy and Verdun were surrendered to the enemy at the moment of their appearance.—What have you to answer?"

Louis. "I did not know that Dabancourt was M. Calonne's nephew. I have not divested the posts. I would not have permitted myself such a thing. I know nothing of it, if it has been so."

Pref. "You have destroyed our navy—a vast number of officers belonging to that corps had emigrated; there scarcely remained any to do duty in the harbours; meanwhile Bertrand was granting passports every day; and when the legislative body represented to you his criminal conduct on the 8th of March, you answered, that you were satisfied with his services.—What have you to answer?"

Louis. "I have done all I could to retain the officers. As to M. Bertrand, since the legislative assembly presented no complaint against him that might have put him in a state of accusation, I did not think proper to turn him out of office."

Pref. "You have favoured the maintenance of absolute government in the colonies; your agents fomented troubles and counter-revolutions throughout them, which took place at the same epoch when it was to have been brought about in France, which indicates plainly that your hand laid this plot.—What have you to answer?"

Louis. "If there are any of my agents in the colonies, they have not spoken the truth; I had nothing to do with what you have just mentioned."

Pref. "The interior of the state was convulsed by fanatics; you avowed yourself their protector, in manifesting your evident intention of recovering by them your ancient power.—What have you to answer?"

Louis. "I cannot answer to this; I know nothing of such a project."

Pref. "The legislative body had passed a decree on the 29th of January against the factious priests; you suspended its execution.—What have you to answer?"

Louis. "The constitution reserved to me the free right to refuse my sanction of the decrees."

Pref. "The troubles had increased; the minister declared, that he knew no means in the laws extant to arraign the guilty. The legislative body enacted a fresh decree, which you likewise suspended.—What have you to say to this?"

[Louis replied in the same manner as in the preceding charge.]

Pref. "The uncitizen-like conduct of the guards whom the constitution had granted you, had rendered it necessary to disband them. The day after, you sent them a letter expressive of your satisfaction, and con-

tinued their pay. This fact is proved by the treasurer of the civil list.—What have you to answer?"

Louis. "I only continued them in pay till fresh ones could be raised, according to the tenor of the decree."

Pref. "You kept near your person the Swiss guards: the constitution forbade you this, and the legislative assembly had expressly ordained their departure.—What have you to answer?"

Louis. "I have executed all the decrees that have been enacted in this respect."

Pref. "You had private companies at Paris, charged to operate movements useful to your projects of a counter-revolution. Dangremont and Gilles were two of your agents, who had salaries from the civil list. The receipts of Gilles, who was ordered to raise a company of 60 men, shall be presented to you.—What have you to answer?"

Louis. "I have no knowledge whatever of the projects laid to their charge: the idea of a counter-revolution never entered into my mind."

Pref. "You wished to suborn, with considerable sums, several members of the legislative and constituent assemblies. Letters from St Leon and others evince the reality of these deeds.—What have you to answer?"

Louis. "Several persons presented themselves with similar decrees, but I have waved them."

Pref. "Who are they that presented you with those projects?"

Louis. "The plans were so vague that I do not recollect them now."

Pref. "Who are those to whom you gave money?"

Louis. "I gave money to nobody."

Pref. "You suffered the French name to be reviled in Germany, Italy, and Spain, since you omitted to demand satisfaction for the bad treatment which the French suffered in those countries.—What have you to answer?"

Louis. "The diplomatical correspondence will prove the contrary; besides, this was a concern of the ministers."

Pref. "You reviewed the Swiss on the 10th of August at five o'clock in the morning; and the Swiss were the first who fired upon the citizens."

Louis. "I went on that day to review all the troops that were assembled about me; the constituted authorities were with me, the department, the mayor, and municipality; I had even invited thither a deputation of the national assembly, and I afterwards repaired into the midst of them with my family."

Pref. "Why did you draw troops to the castle?"

Louis. "All the constituted authorities saw that the castle was threatened; and as I was a constituted authority, I had a right to defend myself."

Pref. "Why did you summon the mayor of Paris in the night between the 9th and 10th of August to the castle?"

Louis. "On account of the reports that were circulated."

Pref. "You have caused the blood of the French to be shed."

Louis. "No, Sir, not I."

Pref. "You authorized Septeuil to carry on a

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considerable trade in corn, sugar, and coffee, at Ham-
burg. This fact is proved by a letter of Septeuil."

Louis. "I know nothing of what you say."

Pres. "Why did you affix a *veto* on the decree which ordained the formation of a camp of 20,000 men?"

Louis. "The constitution left to me the free right of refusing my sanction of the decrees; and even from that period I had demanded the assemblage of a camp at Soissons."

President, addressing the convention. "The questions are done with."—(To *Louis*)—"Louis, is there any thing that you wish to add?"

Louis. "I request a communication of the charges which I have heard, and of the pieces relating thereto, and the liberty of choosing counsel for my defence."

Valazé, who sat near the bar, presented and read to *Louis* Capet the pieces, viz. The memoir of Laporte and Mirabeau, and some others, containing plans of a counter-revolution.

Louis. "I disown them."

Valazé next presented several other papers, on which the act of accusation was founded, and asked the king if he recognized them. These papers were the following:

Valazé. "Letter of *Louis* Capet, dated June 20th 1790, settling his connections with Mirabeau and La Fayette to effect a revolution in the constitution."

Louis. "I reserve to myself to answer the contents"—(*Valazé* read the letter.)—"It is only a plan, in which there is no question about a counter-revolution; the letter was not to have been sent."

Valazé. "Letter of *Louis* Capet, of the 22d of April, relative to conversations about the Jacobins, about the president of the committee of finances, and the committee of domains; it is dated by the hand of *Louis* Capet."

Louis. "I disown it."

Valazé. "Letter of Laporte, of Thursday morning, March 3d, marked in the margin in the hand-writing of *Louis* Capet with March 3d 1791, implying a pretended rupture between Mirabeau and the Jacobins."

Louis. "I disown it."

Valazé. "Letter of Laporte without date, in his hand-writing, but marked in the margin by the hand of *Louis* Capet, containing particulars respecting the last moments of Mirabeau, and expressing the care that had been taken to conceal from the knowledge of men some papers of great concern which had been deposited with Mirabeau."

Louis. "I disown it as well as the rest."

Valazé. "Plan of a constitution, or revision of the constitution, signed La Fayette, addressed to *Louis* Capet, April 6th 1790, marked in the margin with a line in his own hand-writing."

Louis. "These things have been blotted out by the constitution."

Valazé. "Do you know this writing?"

Louis. "I do not."

Valazé. "Your marginal comments?"

Louis. "I do not."

Valazé. "Letter of Laporte of the 19th of April, marked in the margin by *Louis* Capet April 19. 1791, mentioning a conversation with Rivarol."

Louis. "I disown it."

Valazé. "Letter of Laporte, marked April 16, 1791, in which it seems complaints are made of Mirabeau, the abbé Perigord, André, and Beaumetz, who do not seem to acknowledge sacrifices made for their sake."

Louis. "I disown it likewise."

Valazé. "Letter of Laporte of the 23d of February 1791, marked and dated in the hand-writing of *Louis* Capet; a memorial annexed to it, respecting the means of his gaining popularity."

Louis. "I know neither of these pieces."

Valazé. "Several pieces without signature, found in the castle of the Thuilleries, in the gap which was shut in the walls of the palace, relating to the expences to gain that popularity."

President. "Previous to an examination on this subject, I wish to ask a preliminary question: Have you caused a press with an iron door to be constructed in the castle of the Thuilleries, and had you your papers locked up in that press?"

Louis. "I have no knowledge of it whatever."

Valazé. "Here is a day-book written by *Louis* Capet himself, containing the pensions he has granted out of his coffer from 1776 till 1792, in which are observed some douceurs granted to Acloque."

Louis. "This I own, but it consists of charitable donations which I have made."

Valazé. "Different lists of sums paid to the Scotch companies of Noailles, Gramont, Montmorency, and Luxembourg, on the 9th of July 1791."

Louis. "This is prior to the epoch when I forbade them to be paid."

Pres. "Louis, where had you deposited those pieces which you own?"

Louis. "With my treasurer."

Valazé. "Do you know these pension-lists of the life-guards, the one hundred Swiss, and the king's guards for 1792?"

Louis. "I do not."

Valazé. "Several pieces relative to the conspiracy of the camp of Jales, the originals of which are deposited among the records of the department of L'Ar-dèche."

Louis. "I have not the smallest knowledge of them."

Valazé. "Letter of Bouillé, dated Mentz, bearing an account of 993,000 livres received of *Louis* Capet."

Louis. "I disown it."

Valazé. "An order for payment of 168,000 livres, signed *Louis*, indorsed Le Bonneirs, with a letter and billet of the same."

Louis. "I disown it."

Valazé. "Two pieces relative to a present made to the wife of Polignac, and to Lavauguyon and Choiseul."

Louis. "I disown them as well as the others."

Valazé. "Here is a note signed by the two brothers of the late king, mentioned in the declaratory act."

Louis. "I know nothing of it."

Valazé. "Here are pieces relating to the affair of Choiseul-Gouffier at Constantinople."

Louis. "I have no knowledge of them."

French Revolution, 1792. Valazé. "Here is a letter of the late king to the bishop of Clermont, with the answer of the latter, of the 16th of April 1791."

Louis. "I disown it."

President. "Do you not acknowledge your writing and your signet?"

Louis. "I do not."

President. "The seal bears the arms of France."

Louis. "Several persons made use of that seal."

Valazé. "Do you acknowledge this list of sums paid to Gilles?"

Louis. "I do not."

Valazé. "Here is a memorandum for indemnifying the civil list for the military pensions; a letter of Dufresne St Leon, which relates to it."

Louis. "I know none of these pieces."

142 is allowed to nominate his council. When the whole had been investigated in this manner, the president, addressing the king, said, "I have no other questions to propose—have you any thing more to add in your defence?"—"I desire to have a copy of the accusation (replied the king), and of the papers on which it is founded. I also desire to have a counsel of my own nomination." Barriere informed him, that his two first requests were already decreed, and that the determination respecting the other would be made known to him in due time.

It would have been an excess of cruelty to refuse a request so reasonable in itself; it was therefore decreed that counsel should be allowed to the king, and his choice fell upon M. M. Tronchet, Lamoignon Maleherbes, and Deseze; he had previously applied to M. Target, who excused himself on account of his age and infirmity. On the 26th of December, the king appeared for the last time at the bar of the convention; and M. Deseze read a defence which the counsel had prepared, and which was equally admired for the solidity of the argument and the beauty of the composition.

When the defence was finished, the king arose, and holding a paper in his hand, pronounced in a calm manner, and with a firm voice, what follows: "Citizens, you have heard my defence; I now speak to you, perhaps for the last time, and declare that my counsel have asserted nothing to you but the truth; my conscience reproaches me with nothing: I never was afraid of having my conduct investigated; but I observed with great uneasiness, that I was accused of giving orders for shedding the blood of the people on the 10th of August. The proofs I have given through my whole life of a contrary disposition, I hoped would have saved me from such an imputation, which I now solemnly declare is entirely groundless."

143 is confined to the majority. The discussion was fatally closed on the 16th of January. After a sitting of near 34 hours, the punishment of death was awarded by a small majority of the convention, and several of these differed in opinion from the rest, respecting the time when it should be inflicted; some contending that it should not be put in execution till after the end of the war, while others proposed to take the sense of the people, by referring the sentence to the primary assemblies.

M. Deseze then solemnly invoked the assembly in the name of his colleagues, to consider by what a small majority the punishment of death was pronounced against the dethroned monarch. "Do not afflict France (added this eloquent advocate) by a judgment that will appear terrible to her, when five voices only were

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French Revolution, 1793. presumed sufficient to carry it." He appealed to eternal justice, and sacred humanity, to induce the convention to refer their sentence to the tribunal of the people. "You have either forgotten or destroyed (said the celebrated M. Tronchet) the lenity which the law allows to criminals, of requiring at least two-thirds of the voices to constitute a definitive judgment."

The sentence was ordered to be executed in twenty-four hours.

144 And executed. The king and his family had been for some time kept separate from each other; but he was now allowed to see them, and to choose an ecclesiastic to attend him. The meeting, and, above all, the separation from his family, was tender in the extreme. On Monday the 21st January, at eight o'clock in the morning, the unfortunate monarch was summoned to his fate. He ascended the scaffold with a firm air and step. Raising his voice, he said, "Frenchmen, I die innocent; I pardon all my enemies; and may France"—at this instant the inhuman Santerre ordered the drums to beat, and the executioners to perform their office. When they offered to bind his hands, he started back as if about to resist; but recollected himself in a moment, and submitted. When the instrument of death descended, the priest exclaimed, "Son of St Louis, ascend to heaven." The bleeding head was held up, and a few of the populace shouted *Vive la Republique*. His body was interred in a grave that was filled up with quicklime, and a guard placed around till it should be consumed.

145 Character of this unfortunate monarch. Thus fell Louis XVI. He possessed from nature a good understanding, which, however, was blunted by the early indulgences of a court. He had a strong sense of justice, and his humanity was perhaps extreme. One defect rendered his virtues of little value, which was the possession of an irresolute and unsteady character. Unambitious, and easily advised, he was without difficulty induced to change his purposes, especially by his queen, whose connection with the house of Austria had always tended to render his counsels unpopular. Whether he was or was not connected with the foreign invaders of his country, posterity must decide; but all men of sense and moderation must be convinced that he was murdered by a band of ruffians. Indeed a sentence so infamous, and in all respects unjust, is not to be found in the records of history. The greater part of the charges brought against him were trifling. Those which seem to be of importance relate to conduct authorized by the constitution under which he acted; and that constitution declared his person inviolable. The severest punishment that he could incur by law, was not death, but deposition; and there is no doubt, that in putting him to death the French nation broke the social compact which their representatives made with him. In a political view, this tragical event was injurious to the republican cause throughout Europe. No man out of France ventured to justify it; and in all countries it excited the most violent indignation against the rulers of the new republic.

146 Rupture with Great Britain. New enemies were now hastening to join the general league against France. We do not mean here to enter into a detail of the political struggles that occurred in any other country, than that in the narrative of whose revolution we are now engaged. It will therefore only be necessary to remark in general, that the British government at this time thought itself endangered by the propagation of those speculative opinions which had overturned.

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Grounds of
the quarrel
on the part
of Great
Britain.

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War declar-
ed against
the king of
England
and stadtholder of
Holland,

overturned the French monarchy. Almost all the men of property in the kingdom concurred with the ministry in thinking a war with France necessary for the purpose of securing the constitution at home. After the 10th of August the British minister had been recalled; but the new republic still suffered the former ambassador from France, M. Chauvelin, to remain in England.

The ostensible grounds of quarrel on the part of Great Britain were chiefly two; the decree of the 15th of November 1792, by which it was truly observed that encouragement to rebellion was held out to the subjects of every state, and that war was thereby waged against every established government. Of this decree the French executive council gave explanations, denying the fairness of the interpretation put upon it, and alleging, that the intention of the convention was only to give aid to such countries as *had already* acquired their freedom, and by a declaration of the general will requested aid for its preservation. But this explanation cannot be admitted. The decree expressly says, that the French nation will *grant assistance to all who wish to procure liberty*; and when it is considered what their notions of liberty are, it cannot be doubted but that their intention was to excite rebellion in foreign nations. The second point of dispute referred to the opening of the Scheldt. This river runs from Brabant through the Dutch territory to the sea. The Dutch had shut up the mouth of it, and prevented any maritime commerce from being carried on by the people of Brabant by means of the river. To render themselves popular in Brabant, the French had declared, that they would open the navigation of the Scheldt. But Great Britain had some time before bound herself by treaty with the Dutch to assist them in obstructing this navigation, and now declared to the French, that the project of opening the Scheldt must be renounced if peace with Great Britain was to remain. The French alleged, that by the law of nations navigable rivers ought to be open to all who reside on their banks; but that the point was of no importance either to France or England, and even of very little importance to Holland; that if the people of Brabant themselves chose to give it up, they would make no objection. It has been thought remarkable, that the Dutch gave themselves no trouble about the matter. They did not ask the assistance of England; and with that coolness which is peculiar to their character, the merchants individually declared, that if the Scheldt was opened, they could manage their commerce as well at Antwerp as at Amsterdam. But in all this there is nothing strange. Among the Dutch were many republicans, who wished for the downfall of the stadtholder. These rejoiced at every thing which distressed him, or had a tendency to render his office useless in the eyes of the people. Others, who thought differently, were afraid to speak their sentiments, as Dumourier was in their neighbourhood with a victorious army. The result of the whole was, that M. Chauvelin was commanded by the British government to leave this country. The French executive council gave powers to another minister, M. Maret, to negotiate, and requested a passport for him; but he was not suffered to land. The haughty republicans, having thus far humbled themselves before the British government, at last, on the 1st of February 1793, on the motion of Brissot, the national convention decreed, among other articles, that "George king of England had never ceased since the revolution

of the 10th of August 1792 from giving to the French nation proofs of his attachment to the concert of crowned heads; that he had drawn into the same lake the stadtholder of the United Provinces; that, contrary to the treaty of 1783, the English ministry had granted protection to the emigrants and others who have openly appeared in arms against France; that they have committed an outrage against the French republic, by ordering the ambassador of France to quit Great Britain; that the English have stopped divers boats and vessels laden with corn for France, whilst, at the same time, contrary to the treaty of 1786, they continue the exportation of it to other foreign countries; that to thwart more efficaciously the commercial transactions of the republic with England, they have by an act of parliament prohibited the circulation of assignats. The convention therefore *declare*, that in consequence of these acts of hostility and aggression, the French republic is at war with the king of England and the stadtholder of the United Provinces."

The absurdity of pretending that any treaty with France made in 1783 could be violated by protecting the emigrants who fled from the fury of the convention, must be obvious to every reader. The convention was itself a rebellious usurpation of the government with which such a treaty was made. The prohibition of assignats was certainly contrary to no law, and was sanctioned by every motive of expediency, unless the convention could prove that all nations were bound by the law of nature to risk their own credit upon the credit of the French republic.

About a fortnight after this absurd declaration against Britain, war was likewise declared against Spain; and in the course of the summer France was at war with all Europe, excepting only Switzerland, Sweden, Denmark, and Turkey.

In the mean time General Dumourier, who was proceeding agreeably to his orders, made an attack upon Holland; but in doing this he dispersed his troops in such a manner as to expose them much to any attack on the side of Germany. He commanded General Miranda to invest Maastricht, while he advanced to block up Breda and Bergen-op-zoom. The first of these places, viz. Breda, surrendered on the 24th of February; Klundert was taken on the 26th; and Gertruydenberg on the 4th of March. But here the triumphs of Dumourier ended. The sieges of Williamstadt and Bergen-op-zoom were vigorously but unsuccessfully pressed. On the 1st of March General Clairfait having passed the Roer, attacked the French posts, and compelled them to retreat with the loss of 2000 men.

The following day the archduke attacked them anew with considerable success. On the 3d the French were driven from Aix-la-Chapelle, with the loss of 4000 men killed and 1600 taken prisoners.

The siege of Maastricht was now raised; and the French retreated to Tongres, where they were also attacked and forced to retreat to St Tron. Dumourier here joined them, but did not bring his army along with him from the attack upon Holland. After some skirmishes a general engagement took place at Neerwinden. It was fought on the part of the French with great obstinacy; but they were at length overpowered by the number of their enemies, and perhaps also by the treachery of their commander. This defeat was fatal. The French lost 3000 men, and 6000 immediately

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And against
Spain.

150.
Progress of
Dumourier

151.
He is de-
feated.

French immediately deserted and went home to France. Dumourier continued to retreat, and on the 22d he was again attacked near Louvain. He now, through the medium of Colonel Mack, came to an agreement with the Imperialists that his retreat should not be seriously interrupted. It was now fully agreed between him and the Imperialists, that while the latter took possession of Condé and Valenciennes, he should march to Paris, dissolve the convention, and place the son of the late king upon the throne.

The rapid retreat and successive defeats of General Dumourier rendered his conduct suspicious. Commissioners were sent from the executive power for the purpose of discovering his designs. They dissembled, and pretended to communicate to him a scheme of a counter-revolution. He confessed his intention of dissolving the convention and the Jacobin club by force, which he said would not exist three weeks longer, and of restoring monarchy. On the report of these commissioners the convention sent Bournonville the minister of war to supersede and arrest Dumourier, along with Camus, Blancal, La Marque, and Quinette, as commissioners. The attempt on the part of these men was at least hazardous, to say no more of it; and the result was, that on the first of April Dumourier sent them prisoners to General Clairfait's head quarters at Tournay as hostages for the safety of the royal family. He next attempted to seduce his army from their fidelity to the convention; but he speedily found that he had much mistaken the character of his troops. Upon the report that their general was to be carried as a criminal to Paris, they were seized with sudden indignation; but when they found that an attempt was making to prevail with them to turn their arms against their country, their sentiments altered. On the 5th of April two proclamations were issued; one by General Dumourier, and the other by the prince of Saxe Cobourg, declaring that their only purpose was to restore the constitution of 1789, 1790, and 1791. Prince Cobourg announced that the allied powers wished merely to co-operate with General Dumourier in giving to France her constitutional king and the constitution she had formed for herself, declaring, on his word of honour, that he came not to the French territory for the purpose of making conquests. On the same day Dumourier went to the advanced guard of his own camp at Maulde. He there learned that the corps of artillery had risen upon their general, and were marching to Valenciennes; and he soon found that the whole army had determined to stand by their country. Seven hundred cavalry and 800 infantry was the whole amount of those that deserted with Dumourier to the Austrians, and many of them afterwards returned.

By the defection of Dumourier, however, the whole army of the north was dissolved, and in part disbanded, in presence of a numerous, well-disciplined, and victorious enemy. The Prussians were at the same time advancing on the Rhine with an immense force, and about to commence the siege of Mentz. In the interior of the republic more serious evils if possible were arising. In the departments of La Vendée and La Loire, or the Provinces of Brittany and Poitou, immense multitudes of emigrants and other royalists had gradually assembled in the course of the winter. They professed to act in the name of Monsieur, as regent of France.

About the middle of March they advanced against Nantz to the amount of 40,000. In the beginning of April they defeated the republicans in two pitched battles, and possessed themselves of 50 leagues of country. They even threatened by their own efforts to shake the new republic to its foundation. On the 8th of April a congress of the combined powers assembled at Antwerp. It was attended by the prince of Orange and his two sons, with his excellency Vander Spiegel, on the part of Holland; by the duke of York and Lord Auckland on the part of Great Britain; by the prince of Saxe Cobourg, Counts Metterinch, Starenberg, and Mercy Dargenteau, with the Prussian, Spanish, and Neapolitan envoys. It was here determined to commence active operations against France. The prince of Cobourg's proclamation was recalled, and a scheme of conquest announced.

Commissioners from the convention now set up the standard of the republic anew, and the scattered battalions flocked around it. General Dampierre was appointed commander, and on the 13th he was able to resist a general attack upon his advanced posts. On the 14th, his advanced guard yielded to superior numbers, but on the 15th was victorious in a long and well-fought battle. On the 23d the Austrians were again repulsed, and on the 1st of May General Dampierre was himself repulsed in an attack upon the enemy. On the 8th another engagement took place, in which the French general was killed by a cannon ball. On the 23d a more determined attack was made by the allies upon the French fortified camp of Famars, which covered the town of Valenciennes. The French were overcome, and in the night abandoned their camp. In consequence of this the allies were enabled to commence the siege of Valenciennes; for Condé had been blockaded from the 1st of April.

About the same time General Custine on the Rhine made a violent but unsuccessful attack upon the Prussians, in consequence of which they were soon enabled to lay siege to Mentz. The Corsican General Paoli revolted at this period; and the new republic, assailed from without by the whole strength of Europe, was undermined by treachery and faction within.

While the country was in a state verging upon utter ruin, parties in the convention were gradually waxing more fierce in their animosity; and regardless of what was passing at a distance, they seemed only anxious for the extermination of each other. In the month of March, the celebrated *Revolutionary Tribunal* was established for the purpose of trying crimes committed against the state; and the Girondist party, the mildness of whose administration had contributed not a little to increase the evils of their country, began to see the necessity of adopting measures of severity. But the public calamities, which now rapidly followed each other in succession, were ascribed by their countrymen to their imbecillity or perfidy. This gave to the party of the *Mountain* a fatal advantage. On the 15th of April the communes of the 48 sections of Paris presented a petition, requiring that the chiefs of the Girondists therein named should be impeached and expelled from the convention. This was followed up on the 1st of May by another petition from the suburb of St Antoine. The Girondist party in the mean time impeached Marat, but he was acquitted by the jury at his trial.

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Mountain, by the assistance of the Jacobin club, had now acquired a complete ascendancy over the city of Paris. The Girondists or Brissotines proposed therefore to remove the convention from the capital; and to prevent this, the *Mountain* resolved to make the same use of the people of the capital against the Girondist party that they had formerly done against the monarch on the 10th of August. It is unnecessary to state in detail all the tumults that occurred either in Paris or in the convention during the remaining part of the month of May. On the 31st, at four o'clock in the morning, the tocsin was sounded, the generale was beat, and the alarm guns fired. All was commotion and terror. The citizens flew to arms, and assembled round the convention. Some deputations demanded a decree of accusation against 35 of its members. The day, however, was spent without decision. On the afternoon of the 1st of June an armed force made the same demand. On the 2d of June this was repeated, the tocsin again sounded, and an hundred pieces of cannon surrounded the national hall. At last Bartere mounted the tribune. He was considered as a moderate man, and respected by both parties; but he now artfully deserted the Girondists. He invited the denounced members voluntarily to resign their character of representatives. Some of them complied, and the president attempted to dissolve the sitting; but the members were now imprisoned in their own hall. Henriot, commander of the armed force, compelled them to remain; and the obnoxious deputies, amounting to upwards of 90 in number, were put under arrest, and a decree of denunciation against them signed.

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The Mountain party get the upper hand.

It is obvious, that on this occasion the liberties of France were trodden under foot. The minority of the national representatives, by the assistance of an armed force raised in the capital, compelled the majority to submit to their measures, and took the leading members prisoners. Thus the city of Paris assumed to itself the whole powers of the French republic; and the nation was no longer governed by representatives freely chosen, but by a minority of their members, whose sentiments the city of Paris and the Jacobin club had thought fit to approve of. Human history is a mass of contradictions. The *Mountain* party came into power by preaching liberty, and by violating its fundamental principles. How far the plea of political necessity may excuse their conduct, we shall not venture to decide explicitly. Certain it is, however, that they soon commenced a career of the most terrible energy both at home and abroad that is to be found in the annals of nations.

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Several cities and departments revolt in consequence.

The first result of their victory in the capital was calamitous to the republic at large. Brissot and some other deputies escaped, and endeavoured to kindle the flames of civil war. In general, however, the influence of the Jacobin club, and of its various branches, was such, that the north of France adhered to the convention as it stood; but the southern departments were speedily in a state of rebellion. The department of Lyons declared the *Mountain* party outlawed. Marseilles and Toulon followed the example of Lyons, and entered into a confederacy, which has since been known by the appellation of *Federalism*. The departments of La Gironde and Calvades broke out into open revolt. In short, the whole of France was in a state of violent convulsion. Still, however, the enthusiastic garrisons

of Mentz and Valenciennes protected it against the immediate entrance of a foreign force, and allowed leisure for one of its internal factions to gain an ascendancy, and thereafter to protect its independence. In the mean time, the political enthusiasm of all orders of persons was such, that even the female sex did not escape its contagion. A young woman of the name of Charlotte Cordé, in the beginning of July, came from the department of Calvades to devote her life for what she thought the cause of freedom and of her country. She requested an interview with *Marat*, the most obnoxious of the *Mountain* party. Having obtained it, and conversed with him calmly for some time, she suddenly plunged a dagger in his breast, and walked carelessly out of the house. She was immediately seized and condemned. At the place of execution she behaved with infinite constancy, shouting *Vive la republique*. The remains of *Marat* were interred with great splendor, and the convention attended his funeral. His party, perhaps derived advantage from the manner of his death, as it seemed to fasten the odious charge of assassination upon their antagonists, and gave them the appearance of suffering in the cause of liberty. The truth is, that assassination was sanctioned by both parties under pretence of defending the liberties of the republic.

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Marat murdered by a woman.

One of the first acts of the *Mountain* junto after their triumph was to finish the republican constitution. Previous to their fall, the Girondists had brought forward the plan of a constitution, chiefly the work of Condorcet; but it never was sanctioned by the convention, and was too intricate to be practically useful. The new constitution now framed, which was afterwards sanctioned by the nation, but has never yet been put in practice, abolishes the former mode of electing the representatives of the people through the medium of *electoral* assemblies, and appoints them to be chosen immediately by the *primary* assemblies, which are made to consist of from 200 to 600 citizens, each man voting by ballot or open vote at his option. There is one deputy for every 40,000 individuals, and population is the sole basis of representation. The elections take place every year on the 1st of May. Electoral assemblies are still retained for one purpose. Every 200 citizens in the primary assemblies name one elector; and an assembly of all the electors of the department is afterwards held, which elects candidates for the *executive council*, or ministry of the republic. The legislative body chooses out of this list of candidates the members of the executive council. One half of this council is renewed by each legislature in the last month of the session. Every law, after it is passed by the legislative body, is sent to the department. If in more than half of the departments the tenth of the primary assemblies of each have not objected to it, it becomes effectual. Trial by jury is established. National conventions may be called for altering the constitution, and *must* be called, if required by the tenth of the primary assemblies of each department in a majority of the departments.

The publication of this constitution procured no small degree of applause to the convention and the *Mountain* party. The rapidity with which it was formed (being only a fortnight) seemed to cast a just reproach upon the slowness of their antagonists, and it was regarded as a proof of their being decidedly fer-

rious

ious in the cause of republicanism. No regard, however, has been paid to it by the convention, which has declared itself permanent, nor indeed does it seem possible to carry it into execution.

We have mentioned that Condé was invested from the beginning of April. It did not yield till the 10th of July, when the garrison was so much reduced by famine and disease, that out of 4000 men, of which it originally consisted, only 1500 were fit for service. The eyes of all Europe were in the mean time fixed upon the siege of Valenciennes. Colonel Moncrieff had contended, that batteries ought immediately to be placed under the walls without approaching it by regular parallels; but the Imperial engineer Mr Ferraris asserted, that the work of the great Vauban must be treated with more respect; and his opinion was adopted by the council of war. The trenches were opened on the 14th of June. Few sallies were attempted by the garrison, on account of the smallness of their number. The inhabitants at first wished to surrender; but the violence of the bombardment prevented their assembling or giving much trouble on that head to General Ferrand the governor. Much of the labour of the siege consisted of mines and countermines. Some of these having been successfully sprung by the allies, the town was surrendered on the 27th of July by capitulation to the Duke of York, who took possession of it in behalf of the emperor of Germany. The siege of Mentz was at the same time going on. It suffered much from famine. At last, after an unsuccessful attempt by the French army on the Rhine for its relief, Mentz surrendered on the 22d of July.

At the termination of the siege of Valenciennes it is said that the allied powers were at a loss how to proceed next. The Austrian commanders are said to have presented two plans: The first was to penetrate to Paris by the assistance of the rivers which fall into the Seine; the other was to take advantage of the consternation occasioned by the surrender of Valenciennes, and with 50,000 light troops to penetrate suddenly to Paris, while a debarkation should be made on the coast of Brittany to assist the royalists. The proposal of the British ministry was, however, adopted, which was, to divide the grand army, and to attack West Flanders, beginning with the siege of Dunkirk. This determination proved ruinous to the allies. The French found means to vanquish in detail that army, which they could not encounter when united.

It is said that the Duke of York was in secret correspondence with Omeron the governor of Dunkirk; but he was removed before any advantage could be taken of his treachery. On the 24th of August the Duke of York attacked and drove the French outposts into the town, after an action in which the Austrian General Dalton was killed. A naval armament was expected from Great Britain to co-operate in the siege, but it did not arrive. In the mean time, a strong republican force menaced the covering army of the allies, which was commanded by General Freytag. He was soon attacked and totally routed. The siege was raised. The British lost their heavy cannon and baggage, with several thousand men; and the convention, believing that their General Houchard could have cut off the Duke of York's retreat, tried and executed him for this neglect of duty.

Prince Cobourg and General Clairfait in the mean time unsuccessfully attempted to besiege Cambray and Bouchain. Quesnoy was, however, taken by General Clairfait on the 11th of September; and here finally terminated for the present campaign the success of the allies in the Netherlands.

A considerable part of the French army of the north took a strong position near Maubeuge, where they were blockaded by Prince Cobourg; but upon the 15th and 16th of October he was repeatedly attacked by the French troops under General Jourdan, who succeeded Houchard. The French had now recovered their vigour. They brought into the field a formidable train of artillery, in which were many 24 pounders. Commissioners from the convention harangued the soldiers, threatened the fearful, and applauded the brave. Crowds of women, without confusion, went through the ranks, distributing spirituous liquors in abundance, and carrying off the wounded. The attacks were repeated and terrible on both sides; but the Austrians had considerably the disadvantage, and Prince Cobourg retired during the night. The French now menaced maritime Flanders. They took Furnes and besieged Nieupoort. A detachment of British troops ready to sail to the West Indies were hastily sent to Ostend, and prevented for the present the farther progress of the French.

Such was the multiplicity of the events that now occurred in France, that it is difficult to state the outlines of them with any tolerable perspicuity. We have already mentioned the extensive dissensions that occurred throughout the republic in consequence of the triumph of the Mountain party on the 31st of May. The department of Calvades was first in arms against the convention under the command of General Felix Wimpfen; but before the end of July the insurrection was quieted, after a few slight skirmishes. But the federalism of the cities of Marseilles, Lyons, and Toulon, still remained. Lyons was attacked on the 8th of August by the conventional troops. Several actions followed, which were attended with great loss both on the part of the assailants and of the besieged. The city was reduced almost to ruins; but it held out during the whole month of September. The besieging General Kellerman was removed from his command, on account of his supposed inactivity; and the city surrendered on the 8th of October to General Doppet, a man who had lately been a physician. Such was the rage of party zeal at this time, that the walls and public buildings of Lyons were ordered to be destroyed, and its name changed to that of *Ville Affranchie*. Many hundreds of its citizens were dragged to the scaffold on account of their alleged treasonable resistance to the convention. The victorious party, wearied by the slow operation of the *guillotine*, at last destroyed their prisoners in multitudes, by firing grape-shot upon them. Such indeed was the unrelenting character of the Mountain at this time, not only here but through the whole republic, that they themselves pretended not to excuse it, but declared that terror was with them *the order of the day*.

In the end of July General Cartaux was sent against Marseilles. In the beginning of August he gained some successes over the advanced federalist troops. On the 24th he took the town of Aix, and the Marseillois

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Lyons be-
sieged by
the conven-
tional
troops, and
taken.

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Unrelent-
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ter of the
conquerors.

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The Mar-
seillois obli-
ged to sub-
mit.

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Toulon
conditional
ly submits
to Lord
Hood,

171
Who is at
length obli-
ged to eva-
cuate it.

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Proceed-
ings of the
royalists in
La Vendée

submitted. But the leading people of the important town and harbour of Toulon entered into a négociation, and submitted to the British admiral Lord Hood, under condition that he should preserve as a deposit the town and shipping for Louis XVII. and under the stipulation that he should assist in restoring the constitution of 1789. The siege of Toulon was commenced by General Cartaux in the beginning of September. It continued without much vigour during that and the whole of the succeeding month. Neapolitan, Spanish, and English troops, were brought by sea to assist in its defence. In the beginning of November, General Cartaux was removed to the command of the army in Italy, and General Dugommier succeeded him. General O'Hara arrived with reinforcements from Gibraltar, and took upon him the command of the town, under a commission from his Britannic majesty. On the 30th of November, the garrison made a powerful sally to destroy some batteries that were erecting upon heights which commanded the city. The French were surprised, and the allies succeeded completely in their object; but, elated by the facility of their conquest, the allied troops rushed forward in pursuit of the flying enemy, contrary to their orders, and were unexpectedly met by a strong French force that was drawn out to protect the fugitives. General O'Hara now came from the city to endeavour to bring off his troops with regularity. He was wounded in the arm and taken prisoner. The total loss of the allies in this affair was estimated at nearly one thousand men. The French had now mustered in full force around Toulon, and prepared for the attack. It was begun on the 19th of December in the morning, and was chiefly directed against Fort Mulgrave, defended by the British. This fort was protected by an entrenched camp, 13 pieces of cannon, 36 and 24 pounders, &c. 5 mortars, and 3000 troops. Such was the ardour of assault, that it was carried in an hour, and the whole garrison was destroyed or taken. The allies now found it impossible to defend the place; and in the course of the day embarked their troops, after having set on fire the arsenal and ships. A scene of confusion here ensued, such as has not been known in the history of modern wars. Crowds of people of every rank, age, and sex, hurried on board the ships, to avoid the vengeance of their enraged countrymen. Some of the inhabitants began to fire upon their late allies; others in despair were seen plunging into the sea, making a vain effort to reach the ships; or putting an end at once to their own existence upon the shore. Thirty-one ships of the line were found by the British at Toulon; thirteen were left behind; ten were burnt; four had been previously sent to the French ports of Brest and Rochefort, with 5000 republicans who could not be trusted; and Great Britain finally obtained by this expedition three ships of the line and five frigates.

On the side of Spain the war produced nothing of importance; and in the mountainous country of Piedmont it went on slowly. Nice and Chambery were still retained by the French; but more terrible scenes were acting in other quarters. In La Vendée a most bloody war was persisted in by the royalists. In that quarter of the country the language of the rest of France is little understood. The people were superstitious, and had acquired little idea of the new opinions that had

lately been propagated in the rest of the empire. They were chiefly headed by priests, and regarded their cause as a religious one. Their mode of warfare usually was, to go on in their ordinary occupations as peaceable citizens, and suddenly to assemble in immense bands, inasmuch that at one time they were said to amount to 150,000 men. They besieged Nantz and the city of Orleans, and even Paris itself was not thought altogether safe from their enterprises. The war was inconceivably bloody. Neither party gave quarter; and La Vendée proved a dreadful drain to the population of France. On the 28th of June, the conventional general Biron drove the royalists from Lucon; and Nantz was relieved by general Beyssier. After some success, general Westerman was surprised by them, and compelled to retreat to Parthenay. In the beginning of August the royalists were defeated by general Rossignol; but on the 10th of that month, under Charette their commander in chief, they again attacked Nantz, but suffered a repulse. It would be tedious to give a minute detail of this obscure but cruel war. The royalists were often defeated and seemingly dispersed, but as often arose in crowds around the astonished republicans. At last, however, about the middle of October, they were completely defeated, driven from La Vendée, and forced to divide into separate bodies. One of these threw itself into the island of Noirmoutier, where they were subdued; another took the road of Maine and Brittany, where they struggled for some time, against their enemies, and were at last cut to pieces or dispersed.

The royalists had long expected assistance from England; and an armament under the earl of Moira was actually fitted out for that service, but it did not arrive till too late, and returned home without attempting a landing. —The Mountain party always disgraced their successes by dreadful cruelties. Humanity is shocked, and history would almost cease to obtain credit, were we to state in detail the unrelenting cruelties which were exercised against the unfortunate royalists, chiefly by Carrier, a deputy from the convention, sent into this quarter with unlimited powers. Multitudes of prisoners were crowded on board vessels in the Loire, after which the vessels were sunk. No age nor sex was spared; and these executions were performed with every circumstance of wanton barbarity and insult.

On the side of the Rhine a great variety of events occurred during the months of August and September. Several engagements at first took place, in which the French were, upon the whole, successful. In September, however, Landau was invested by the combined powers; and it was resolved to make every possible effort to drive the French from the strong lines of Weissembourg, on the river Lauter. On the 13th of October, the Austrian general Wurmser made a grand attack upon these lines. The French say that their generals betrayed them, and suffered the lines to be taken almost without resistance. The general of the allies confessed that the lines might have held out for several days. The French retreated to Hagenau, from which they were driven on the 18th; and suffered two other defeats on the 25th and 27th. Some of the principal citizens of Strasbourg now sent a private deputation to general Wurmser, offering to surrender the town, to be preserved as a deposit to be restored to Louis

Louis XVII. General Wurmser refused to accept of it upon these terms, insisting upon an absolute surrender to his Imperial Majesty. In consequence of the delay occasioned by disagreement, the negotiation was discovered, and the citizens of Strasbourg engaged in the plot were seized by St Just and Lebas, commissioners from the convention, and brought to the scaffold. Prodigious efforts were now made by the French to recover their ground in this quarter. General Irembert was shot at the head of the army on the 9th of November, upon a charge, probably ill-founded, of treachery in the affair of the lines of Weissenbourg. On the 14th, however, Fort Louis was taken by the allies, not without suspicion of treachery in the governor. But here the success of general Wurmser might be said to terminate. On the 21st the republican army drove back the Austrians, and penetrated almost to Hagenau. An army from the Moselle now advanced to co-operate with the army of the Rhine. On the 17th the Prussians were defeated near Sarhruck. Next day their camp at Bliescastel was stormed, and the French advanced to Deux Ponts. On the 29th and 30th the French were repulsed with great loss in two violent attacks made on the duke of Brunswick near Lautern. But it now appeared that the French had come into the field with a determination to conquer whatever it might cost. Every day was a day of battle, and torrents of blood were shed on both sides. The allies had the advantage of possessing the ground, which, in that quarter, at such a late season of the year, is very strong on account of its inequalities and morasses. In military skill, the French officers and those of the allies were perhaps nearly equal; but the French army was by far the most numerous; and although not a match in point of discipline, yet it derived no small superiority from the enthusiasm with which the troops were animated. On the 8th of December, under the command of general Pichegru, the French carried the redoubts which covered Hagenau by means of the bayonet.

This modern instrument of destruction, against which no defensive weapon is employed, is always most successful in the hands of the most intrepid; and it was now a dreadful engine in the hands of French enthusiasm.—The finest troops that ever Europe produced were unable to withstand the fury of the republicans, which seemed only to increase in proportion to the multitude of companions that they lost. On the 22d the allies were driven with immense slaughter from Hagenau, notwithstanding the immense works they had thrown up for their defence. The entrenchments on the heights of Reishoffen, Jaudershoffen, &c. were considered as more impregnable than those of Jemappe. They were stormed by the army of the Moselle and the Rhine, under generals Hoche and Pichegru. On the 23d and 24th, the allies were pursued to the heights of Wrotte. On the 26th, the entrenchments there were forced by the bayonet, after a desperate conflict. On the 27th, the republican army arrived at Weissenbourg in triumph. General Wurmser retreated across the Rhine, and the duke of Brunswick hastily fell back to cover Mentz. The blockade of Landau, which had lasted four months, was raised. Fort Louis was evacuated by the allies, and Kaiserslautern, Germersheim, and Spirea, submitted to the French.—During this last month of the year 1793, the loss of men on both sides

in this quarter was immense, and unexampled in the history of modern war. It is even said that it might amount to more than 70,000 or 80,000 men.

Thus far we have attended to the military affairs of the republic for some time past. Very violent efforts were in the mean time made at Paris by the new administration, established under the auspices of the Jacobin club, and of the party called the *Mountain*. The new republican constitution had been presented to the people in the primary assemblies, and accepted. The business, therefore, for which the convention was called together, that of forming a constitution for France, was at an end; and it was proposed that they should dissolve themselves, and order a new legislative body to assemble, according to the rules prescribed by that constitution. This was, no doubt, the regular mode of procedure; but the ruling party considered it as hazardous to convene a new assembly, possessing only limited powers, in the present distracted state of the country. It was indeed obvious, that France at this time stood in need of a dictatorship, or of a government possessed of more absolute authority than can be enjoyed by one that acts, or even pretends to act, upon the moderate principles of freedom. It was therefore determined that the convention should remain undissolved till the end of the war; and that a *revolutionary* government, to be conducted by its members, should be established, with uncontrolled powers. Committees of its own body were selected for the purpose of conducting every department of business. The chief of these committees was called the *committee of public safety*. It superintended all the rest, and gave to the administration of France all the secrecy and dispatch which have been accounted peculiar to a military government, together with a combination of skill and energy hitherto unknown among mankind. A correspondence was kept up with all the Jacobin clubs throughout the kingdom. Commissioners from the convention were sent into all quarters, with unlimited authority over every order of persons. Thus a government possessed of infinite vigilance, and more absolute and tyrannical than that of any single despot, was established; and the whole transactions and resources of the state were known to the rulers. On the 23d of August, Barrere, in name of the committee of public safety, procured the celebrated decree to be passed for placing the whole French nation in a *state of requisition* for the public service. "From this moment (says the decree) till that when all enemies shall have been driven from the territory of the republic, all Frenchmen shall be in permanent readiness for the service of the army. The young men shall march to the combat; the married men shall forge arms, and transport the provisions; the women shall make tents and clothes, and attend in the hospitals; the children shall make lint of old linen; the old men shall cause themselves to be carried to the public squares, to excite the courage of the warriors, to preach hatred against the enemies of the republic; the cellars shall be washed to procure saltpetre; the saddle-horses shall be given up to complete the cavalry; the unmarried citizens, from the age of 18 to 25, shall march first, and none shall send a substitute; every battalion shall have a banner, with this inscription, *The French nation risen against tyrants*." The decree also regulates the mode of organizing this mass. A decree more ty-

ranical.

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Violent efforts of the Mountain party.

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France decreed to be in a state of requisition.

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Revolution,
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General
Cultine
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established.

rannical than this was never made by an eastern despot; and when it was first published, foreigners were at a loss whether to regard it as a sublime effort of a powerful government, or as a wild project which could produce nothing but confusion. The effects of it, however, have been truly terrible. We have already mentioned some of them in the bloody contest which occurred upon the Rhine, and Europe was soon destined to bear witness to still more extraordinary events.

In the end of July, general Cultine was brought to trial, and executed, in consequence of a variety of accusations of infidelity to his trust and disrespect to the convention. The queen was next brought to trial before the revolutionary tribunal, on the 15th of October. The charges against her were very various; but the chief tendency of them was to prove that she had always been hostile to the revolution, and had excited all the efforts that had been made by the court against it. On the 16th of October, this beautiful woman, whom fortune once placed so high, ended her days on a scaffold, after a mock trial, in which no regard was paid either to justice or decency. She behaved with much dignity and composure, and appeared deeply impressed with a sense of religion. The members of the convention who had been at the head of the Girondist party, and had either been detained in prison since the 31st of May, or seized in the departments to which they had retired, were afterwards brought to trial. On the 30th of October, 21 of them were executed, viz. Brissot, Vergniaud, Genfonné, Duprat, Lehardi, Ducos, Fonfrede, Boileau, Gardien, Duchatel, Sillery, Fauchet, Dufriche, Duperret, La Source, Carra, Beauvais, Mainville, Antiboul, Vigée, and Lacaze. Seventy-one were still detained in confinement. The duke of Orleans was afterwards condemned, on a charge of having aspired to the sovereignty from the beginning of the revolution. His execution gave satisfaction to all parties. His vote for the punishment of death upon the trial of the late king had done him little honour even in the opinion of the Mountain, and had rendered him odious to all the rest of mankind.

The executions of persons of all ranks, particularly of priests and nobles, became now so common, that it would be in vain to attempt to give any detail of them. Every person brought before the revolutionary tribunal was condemned as a matter of course. The Jacobins seemed insatiable in their thirst after blood, and the people at large appeared to regard their conduct with unaccountable indifference.

When the human mind is once roused, its activity extends to every object. At this time a new table of weights and measures was established by the convention, in which the decimal arithmetic alone is employed. The court of Spain had the liberality, notwithstanding the war, to suffer M. Mechain to proceed in his operations for measuring a degree of the meridian in that country. He carried on his series of triangles from Barcelona to Perpignan; and from this place the mensuration was continued to Paris. M. de Lambre, and his pupil M. le Francois, also measured a degree of latitude in the vicinity of the metropolis. In all, 12 degrees of the meridian were measured; of which the mean is 57027 toises, and by this the universal standard of measure is calculated. M. M. de Borde and Cassini determined the length of a pendulum that swings fe-

conds, *in vacuo* and in a mean temperature at Paris, to be 3 feet and 8,06 lines. M. M. Lavoisier and Haüy found that a cubic foot of distilled water at the freezing point weighs *in vacuo* 70 pounds and 60 gros French weight. We shall insert a table of the measures and weights now established.

Long Measure.		French Toises.	
Metres.			
10,000,000 =	a quadrant of the meridian which is the principle on which the new measure is founded	-	5132430
100,000 =	an hundredth part of a quadrant, or decimal degree of the meridian	-	51324
1000 =	a <i>milliare</i> , or mile	-	513
100 =	a <i>stadium</i>	Agrarian measure,	{ 51.3243
10 =	a <i>perch</i>		
		Feet. Inch. Lines.	
1 =	a <i>metre</i> , or rectilineal unit	3	0 11.44
$\frac{1}{10}$ or 0.1 =	a <i>decimetre</i> , or palm	0	3 8.344
$\frac{1}{100}$ or 0.01 =	a <i>centimetre</i> , or digit	0	0 4.434
$\frac{1}{1000}$ or 0.001 =	a <i>millimetre</i>	0	0 .443
Superficial Measure.		Sq. Feet.	
Sq. Metres.			
10,000 =	an <i>are</i> , or superficial unit, being a square the side of which is 100 metres in length	-	94831
1000 =	a <i>deciare</i> , or tenth of an <i>are</i> ; a superficies an hundred metres long, and ten broad	-	9483.1
100 =	a <i>centiare</i>	-	948.31
Measures of Capacity.		Paris Pints. Paris Bush.	
Cub. decimetres			
1000 =	the cubic <i>metre</i> , or cade or tun	1051 $\frac{1}{2}$	78.9
100 =	<i>decicade</i> , or <i>setier</i>	105 $\frac{1}{4}$	7.89
10 =	<i>centicade</i> , or bushel	10 $\frac{1}{2}$.789
1 =	cubic <i>decimetre</i> , or pint	1 $\frac{1}{16}$.0789
Weights.		French Pounds.	
Cub. decimetres of water.			
1000 =	the weight of a cubic <i>metre</i> , or cade of water, is called a <i>bar</i> or <i>millier</i>	-	2044.4
100 =	$\frac{1}{10}$ of a <i>bar</i> , or <i>decibar</i> , or quintal	-	204.44
10 =	$\frac{1}{100}$ of a <i>bar</i> , or <i>centibar</i> , or <i>decal</i>	-	20.444
		lb. oz. gros. grains.	
1 =	the weight of a cubic decimetre of water is called a <i>grave</i> , or pound	2	8 5 49
.1 =	$\frac{1}{10}$ of a <i>grave</i> , or <i>decigrave</i> , or ounce	0	3 2 12.1
.01 =	$\frac{1}{100}$ of a <i>grave</i> , or <i>centigrave</i> , or dram	0	0 2 44.41
.001 =	the weight of a cubic centimetre of water, is named a <i>gravet</i> , or <i>maille</i>	0	0 0 18.841
.0001 =	<i>decigravet</i> , or grain	0	0 0 1.8841
.00001 =	<i>centigravet</i>	0	0 0 0.18841

A piece of silver coin weighing a *centigrave*, and a *franc* of silver, according to the former standard will be worth 40 sols 10 $\frac{1}{2}$ deniers. The *milliare*, or thousand *metres*, is substituted for the mile; and the *are*, for the arpent in land-measure. The latter two are to each other as 49 to 25. The astronomical circles with which M. M. de Borda and Cassini made the observations, are divided according to this plan. The quadrant contains 100 degrees, and each degree 100 minutes. Hence the minute of a great circle on our globe is equal to a *milliare*, or new French mile. If, for the reduction of this measure, we estimate the Paris toise, according to the comparison made with the standard kept in the Royal Society of London, at 6.3925 English feet, the *milliare* or minute will be equal to 1093.633 yards, and the *metre* 3.280899 feet.

At the same period a new kalendar was formed.—By it the year is made to begin with the autumnal equinox, and is divided into 12 months. These are called Vindemaire, Brumaire, Frimaire, Nivos, Ventos, Pluvios, Germinal, Froril, Praireal, Messidor, Fervidor, and Fructidor. The months consist of 30 days each, and are divided into three decades. The days of each decade are known by the names of Primidi, Duodi, Tridi, &c. to Decadi; and the day of rest is appointed for every tenth day, instead of the seventh. The day (which begins at midnight) is distributed into ten parts, and these are decimally divided and subdivided. Five supernumerary days are added every year after the 30th of Fructidor. To these is given the absurd appellation of *Sans Cullottides*, a word borrowed from a term of reproach (*sans culotte*), which had often been bestowed on the republican party from the meanness of their rank and fortune; but which that party now attempted to render honourable and popular. The childish folly of this innovation has struck every person with surprize, as it can serve no good purpose whatever. It is a wonderful instance of the backwardness of the human mind, which can occupy itself one moment with deeds of savage barbarity, and the next with a matter so unimportant as the artificial division of time.

The religion of France had been gradually losing its influence; and on the 7th of November, Gobet bishop of Paris, along with a great multitude of other ecclesiastics, came into the hall of the convention, and solemnly resigned their functions and renounced the Christian religion. All the clergymen, whether Protestant or Catholic, that were members of the convention, followed this example, excepting only Gregoire, whom we formerly mentioned as having been one of the first priests that joined the *Tiers Etat* after the meeting of the States General. He had the courage to profess himself a Christian, although he said that the emoluments of his bishopric were at the service of the republic. With the acclamations of the convention, it was decreed that the only French deities hereafter should be Liberty, Equality, Reason, &c. and they would seem to have consecrated these as a kind of new objects of worship.—What political purpose the leaders in the convention intended to serve by this proceeding does not clearly appear; unless, perhaps, their object was to render the French manners and modes of thinking so completely new, that it should never be in their power to return to the state from which they had just emerged, or to unite

in intercourse with the other nations of Europe. The populace; however, could not at once relinquish entirely the religion of their fathers. The Commune of Paris ordered the churches to be shut up, but the Convention found it necessary to annul this order; and Robespierre gained no small degree of popularity by supporting the liberty of religious worship on this occasion. Hebert and Fabre d'Eglantine, who led the opposite party, hastened their own fall by this ill-judged contempt of popular opinion.

For, now that the republic saw itself successful in all quarters, when the Mountain party and the Jacobins had no rival at home, and accounted themselves in no immediate danger from abroad, they began to split into factions, and the fiercest jealousies arose. The Jacobin Club was the usual place in which their contests were carried on; and at this time Robespierre acted the part of a mediator between all parties. He attempted with great art to turn their attention from private animosities to public affairs. He spread a report that an invasion of Great Britain was speedily to take place. He therefore proposed that the Jacobin Club should set themselves to work to discover the vulnerable parts of the British constitution and government. They did so: They made speeches, and wrote essays without number. And in this way was the most fierce and turbulent band of men that ever perhaps existed in any country occupied and amused for a very considerable time. What is no less singular, a great number of British subjects favoured the plans of these reforming Atheists, and, under the specious appellation of the *Friends of the People*, acted in concert with the French Jacobins.

The winter passed away in tolerable quietness, and no military enterprise was undertaken either by the allies or by the French. On the 1st of February, Barrere asserted in the Convention that the confederate powers were willing *provisionally* to acknowledge the French republic, to consent to a cessation of hostilities for two years, at the end of which a lasting peace should be ratified by the French people. But this proposal the Convention declared itself determined to reject, as affording to the other nations of Europe the means of undermining their new government.

In the mean time, the revolutionary government was gradually becoming more vigorous. Thirty committees of the Convention managed the whole business of the state, without sharing much of the direct executive government, which rested in the committee of public safety. These different committees were engaged in the utmost variety of objects. The ruling party had no competitors for power. Without confusion or opposition, therefore, the most extensive plans were rapidly carried into effect. The Convention was little more than a court in which every project was solemnly registered. In the same session 30 decrees would sometimes be passed upon objects the most widely different. The finances were under one committee, at the head of which was Cambon.—This committee found resources for the most lavish expenditure. The assignats were received as money throughout the state; and thus a paper mill was said to have become more valuable than a mine of gold. Their credit was supported by an arbitrary law regulating the *maximum* or highest price of all provisions, and by the immense mass of wealth which had come into the hands of the Convention by seizing the church lands, and by confiscating the property of royalists, emigrants, and

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Quarrels between the Mountain and Jacobins.

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A provisional acknowledgment of the republic by the allies rejected by the convention.

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Vigorous state of the revolutionary government.

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Management of the finances and other resources of the nation.

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persons condemned by the revolutionary tribunal. So unequally had property been divided under the ancient government, that by means of these confiscations about seven-tenths of the national territory was supposed to be in the hands of the public. To this was added the plunder of the churches, consisting of gold and silver saints, and utensils employed in divine worship, along with other articles of less value; among which may be mentioned the innumerable church bells, which were regarded as sufficient for the manufacture of 15,000 pieces of cannon. These resources formed a mass of property such as never was possessed by any government.

Other committees were engaged in very different objects. Highways were constructed, and canals planned and cut throughout the country. Immense manufactories of arms were everywhere established. At Paris alone 1100 muskets were daily fabricated, and 100 pieces of cannon cast every month. Public schools were assiduously instituted, and the French language taught in its purity from the Pyrenees to the Rhine. The French Convention possessed immense resources, and they did not hesitate to lavish them upon their schemes. Every science and every art was called upon for aid, and the most accomplished men in every profession were employed in giving splendour to their country. The chemists, in particular, gave essential aid by the facility with which they supplied materials for the manufacture of gun-powder; and in return for their services, Lavoisier, the greatest of them, suffered death by a most iniquitous sentence. Not fewer than 200 new dramatic performances were produced in less than two years; the object of which was to attach the people to the present order of things. The vigour with which the committees of subsistence exerted themselves is particularly to be remarked. As all Europe was at war with France, and as England, Holland, and Spain, the three maritime powers, were engaged in the contest, it had been thought not impossible to reduce France to great distress by famine, especially as it was imagined that the country had not resources to supply its immense population. But the present leaders of that country acted with the policy of a besieged garrison. They seized upon the whole provisions in the country, and carried them to public granaries. They registered the cattle, and made their owners responsible for them.—They provided the armies abundantly, and, as the people were accurately numbered, they dealt out in every district, on stated occasions, what was absolutely necessary for subsistence, and no more. To all this the people submitted; and indeed, throughout the whole of the mixed scenes of this revolution, the calm judgment of the historian is not a little perplexed. We cannot avoid admiring the patience with which the people at large endured every hardship that was represented as necessary to the common cause, and the enthusiastic energy with which they lavished their blood in defence of the independence of their country. At the same time, we must regard with indignation and disgust the worthless intrigues by means of which the sanguinary factions in the Convention and the capital alternately massacred each other.

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Diffensions
of the Ja-
cobins in-
crease.

During the winter the diffensions of the Jacobins still increased. They were divided into two clubs, of which the new one assembled at a hall which once belonged to the Cordeliers. The leaders of it were He-

bert, Ronfin, Viacent, and others; but the old society retained its ascendancy, and Robespierre was now decidedly its leader. This extraordinary man had gradually accumulated in his own person the confidence of the people and the direction of the government. As the committees were above the Convention, which was become little more than a silent court of record, so the committee of public safety was above the other committees. Robespierre was the leader of this ruling committee. Barriere, St Just, Couthon, and others of its members, only acted a secondary part. They laboured in the business of the state, but the radical power was with Robespierre. He surrounded the members of the Convention with spies. He was jealous and implacable, and set no bounds to the shedding of blood. On the 25th of March he brought to trial the following active Jacobins, who were condemned and executed on the following day: Hebert, Ronfin, Momoro, Vincent, Du Croquet, Kocq, Col. Laumur, M. M. Bourgeois, Mazuel, La Bouëau, Ancard, Le Clerc, Proly, Desfieux, Anacharis Cloots, Pereira, Florent Armand, Descombes, and Debuison. Not satisfied with this, on the 2d of April he brought to trial nine of those who had once been his most vigorous associates, Danton, Fabre d'Eglantine, Bazire, Chabot, Philippeaux, Camille Desmoulins, Lacroix, Delaunay d'Angers, Hérault de Sechelles, who, along with Westerman, were executed on the evening of the 5th.

Still, however, the preparations for the ensuing campaign were proceeding with unabated vigour. The committee for military affairs, at the head of which were Carnot, La Fitte, d'Anissi, and others, was busy in arranging along the frontiers the immense force which the requisition had called forth. Plans of attack and defence were made out by this committee; and when approved by the committee of public safety they were sent to the generals to be executed. On the other side, the allies were making powerful preparations for another attempt to subjugate France. The Emperor himself took the field at the head of the armies in the Netherlands. The plan of the campaign is said to have been formed by the Austrian Colonel Mack. West Flanders was to be protected by a strong body of men; the main army was to penetrate to Landrecies, and getting within the line of French frontier towns, it was to cut them off from the interior by covering the country from Maubeuge to the sea. The plan was *bold*. It belongs to military men to judge whether this was not its only merit. When attempting to put it in execution, the allies must have been ill informed of the immense force which the French were collecting against them. Even the town of Lisle alone, which is capable of containing a numerous army within its walls, and which was to be left in their rear, should have seemed an insurmountable objection to the plan.

On the 16th of April the Austrian, British, and Dutch armies assembled on the heights above Cateau, and were reviewed by the emperor. On the following day they advanced in eight columns against the French, drove in their whole posts, and penetrated beyond Landrecies; which place the French attempted to relieve, but without success. The allied army now amounted to 187,000 men, who were disposed in the following manner; 15,000 Dutch and 15,000 Austrians, under the prince of Orange and general Latour, formed the siege

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tions for
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paign of
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plan of
allies.

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ies.

French Revolution, 1794. **Siege of Landrecies;** 15,000 British and 15,000 Austrians, commanded by the duke of York and general Otto, encamped towards Cambray. The emperor and the prince of Saxe-Cobourg, at the head of 60,000 Austrians, were advanced as far as Guise; 12,000 Hessians and Austrians under general Worms were stationed near Douay and Bouchain; Count Kaunitz with 15,000 Austrians defended the Sambre and the quarter near Maubeuge; and, lastly, general Clairfait, with 40,000 Austrians and Hanoverians, protected Flanders from Tournay to the sea; 60,000 Prussians, for whom a subsidy had been paid by Great Britain, were expected in addition to these, but they never arrived.

The French now commenced their active operations. On the morning of the 26th of April they attacked the duke of York near Cateau in great force. After a severe conflict they were repulsed, and their general Chapuy was taken prisoner. At the same time they attacked the troops under his Imperial majesty, but were there also repulsed in a similar manner; losing in all 57 pieces of cannon. On the same day, however, general Pichegru advanced from Lisle, attacked and defeated general Clairfait, took 32 pieces of cannon; and, in the course of a few days, made himself master of Warwick, Menin, and Courtray. On the 29th of April, the garrison of Landrecies surrendered to the allies. When this event was known in the convention, it excited a considerable degree of alarm. It was, however, the last effectual piece of success enjoyed by the allies during this disastrous campaign. General Clairfait was again completely defeated by Pichegru in a general engagement; and it was found necessary to send the duke of York to his assistance. This movement was no doubt unavoidable; but the effect of it was, that it split down the allied army into a variety of portions, capable of carrying on a desultory warfare, but unfit for the vigorous objects of conquest. On the 10th the duke of York was attacked near Tournay by a body of the enemy, whom he repulsed; but he was unable to join Clairfait, upon whose destruction the French were chiefly bent: for at the same time that the duke of York was occupied by the attack upon himself, Pichegru fell upon Clairfait with such irresistible impetuosity, that he was compelled to retreat in confusion, and a part of his army appears to have fled to the neighbourhood of Bruges. While Pichegru was thus advancing successfully in West Flanders, general Jourdan advanced in East Flanders from Maubeuge, crossed the Sambre, and forced general Kaunitz to retreat. On the 18th, however, general Kaunitz succeeded in repulsing the enemy in his turn, and they re-crossed the Sambre with considerable loss.

The allies now found that no progress could be made in France while general Pichegru was advancing successfully and occupying West Flanders in their rear. The emperor, therefore, withdrew the greater part of his army to the neighbourhood of Tournay, and resolved to make a grand effort to cut off the communication between Courtray and Lisle, thus to prevent completely the retreat of Pichegru. On the night of the 16th, the army moved forwards in five columns for this purpose. Clairfait was at the same time directed to cross the Lys, to effect a general junction, if possible, and complete the plan. The attempt during that evening seemed to promise success; but, in the course of next

day, the division under the duke of York was overpowered by numbers and defeated. The progress of the rest of the columns was stopped, and Clairfait completely defeated. In the confusion of the day, when attempting to rally the different parts of the division which he commanded, the duke of York was separated from his own troops by a party of the enemy's cavalry, and only escaped being made prisoner by the swiftness of his horse. The plan of the allies being thus frustrated, their army withdrew to the neighbourhood of Tournay.

Pichegru speedily attempted to retaliate against the allies. On the 22d of May he brought down at day break his whole force against them. The attack was commenced by a heavy fire of artillery, and all the advanced posts were forced. The engagement soon became general; the attacks were repeatedly renewed on both sides; the whole day was spent in a succession of obstinate battles. All that military skill could do was performed on both sides. The French and the allied soldiers fought with equal courage and equal discipline. At nine o'clock in the evening the French at last reluctantly withdrew from the attack. The day on which a vanquished enemy flies from the field is not always that on which the victory is won. In this engagement the French were unsuccessful in their immediate object; but the weight of their fire, their steady discipline, and their violent obstinacy of attack, raised their military character high in the estimation of the officers and soldiers of the allied army. It was soon perceived, that in addition to these they possessed other advantages. Their numbers were immense; they implicitly obeyed their generals; who, being men newly raised from the rank of subalterns, as implicitly submitted to the directions of the committee of public safety. A combination of efforts was thus produced whose operation was not retarded by divided counsels. On the other side, the numbers of the allies were daily declining; their leaders were independent princes or powerful men, whose sentiments and interests were often very hostile to each other, and their exertions were consequently disunited.

On the 24th the French again crossed the Sambre, but were driven back with much loss. On the 27th an attempt was made to besiege Charleroi, but the prince of Orange on the 3d of June compelled them to raise the siege. On the 12th a similar attempt was made, and they were again repulsed. In West Flanders, however, Pichegru was sufficiently strong to commence the siege of Ypres. He was soon attacked by general Clairfait for the purpose of relieving it, but without success.—Ypres was garrisoned by 7000 men; reinforcements were therefore daily sent from the grand army to Clairfait for the purpose of relieving it. It is unnecessary to mention the bloody contests in which that unfortunate general was daily engaged with the French; it is sufficient to say, that they were uniformly unsuccessful, and were the means of wasting, in a great degree, the armies of the allies. Ypres held out till the 17th of June, when it capitulated: and such was the discipline of the French army at this time, that no notice could be obtained, for several days, of that event. In consequence of it and of other events, the duke of York found it necessary to retreat to Oudenarde; for Jourdan, after storming the Austrian camp

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ed, and the
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defeated.

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the French
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And on the
Rhine.

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Corfica
subdued by
Great Bri-
tain.

of Betignies, now advanced with such strength upon Charleroi in the east that its immediate fall was feared. As this would have enabled the two French armies to encircle the whole of Flanders, the prince of Cobourg advanced to its relief. Charleroi surrendered at discretion on the 25th. This circumstance was not known by the prince of Cobourg when he advanced on the 26th to attack in their entrenchments the army that covered the siege near Fleurus: but the covering army being by this time reinforced by the accession of the besieging army, the allies were repulsed. Jourdan then drew his men out of their entrenchments; and, in his turn, attacked the Austrians. He was three times repulsed, but was at last successful: the loss of the vanquished army is said to have been prodigious; but no regular accounts of it have been published. The French unquestionably exaggerated their own success, when they said that it amounted to 15,000 men.

The allies now retreated in all quarters. Nieuport, Ostend, and Bruges, were taken; and Tournay, Mons, Oudenarde, and Brussels, opened their gates. At this last place the French armies of East and West Flanders united. Landrecies, Valenciennes, Condé, and Quesnoy, were fruitlessly left with garrisons in them. The allied troops, evacuating Namur, formed a line from Antwerp to Liege to protect the country behind. The French advanced in full force, and attacked general Clairfait, cut to pieces half the troops that now remained under him, and broke the line. The allies retreated before them. The duke of York was joined by some troops under the earl of Moira that with much difficulty had made their way to him from Ostend; and with these and the Dutch troops he retired to the neighbourhood of Bergen-op-zoom and Breda for the protection of Holland. The prince of Cobourg evacuated Liege, crossed the Mæse, and placed a garrison in Maastricht. He soon, however, sent back a part of his troops to the neighbourhood of Tongres; for here, to the astonishment of all Europe, the French armies made a voluntary pause in their career of victory, and ceased to pursue their retiring foes. Sluys in Dutch Flanders was the only foreign post that they continued to attack; and it surrendered after a siege of 21 days.

On the Rhine the war was equally successful on the part of the French. On the 12th, 13th, and 14th of July, repeated engagements were fought; in which the French enjoyed their usual success. They had numerous armies in every quarter. Their mode of fighting was to make full preparation for accomplishing their object, and to fight in great bodies day after day till it was obtained. The Palatinate was thus over-run, and Treves taken, by general Michaud. Flanders and the Palatinate have always been accounted the granaries of Germany; and both of them, at the commencement of the harvest, now fell into the hands of the French.

During the course of this summer Corfica was subdued by Great Britain; and the whole of the French West India Islands, excepting a part of Guadaulope, yielded to the British troops under the command of Sir Charles Grey and Sir John Jarvis. On the first of June the British fleet, under the command of earl Howe, gained a most splendid victory over the French fleet to the westward of Ushant. The French committee of safety were known to have purchased in America im-

menſe quantities of grain and other ſtores. Theſe were embarked on board 160 ſail of merchantmen, convoyed by ſix ſail of the line. Lord Howe failed to intercept this valuable convoy. The French fleet failed at the ſame time to protect it. On the morning of the 28th of May the fleets came in ſight of each other. The Britiſh admiral had previously diſpatched ſix ſhips of the line under admiral Montague to intercept the French convoy, while he ſhould engage and detain the grand fleet. The French diſpatched eight ſail to deſeat this attempt. In the courſe of the 29th Lord Howe got to windward of the French fleet. His force was 25, and theirs was 26, ſail of the line. The following day he bore down upon them, and broke their line. The engagement was one of the ſevereſt ever fought. The French admiral, in leſs than an hour after the cloſe action commenced in the centre, crowded off with 12 of his ſhips. The Britiſh fleet was ſo much diſabled, or ſeparated, that ſeveral of the French diſmasted ſhips got away under ſails raiſed on the ſtump of their fore-maſts. Seven ſail of the line, however, remained in poſſeſſion of the Britiſh, and two were unqueſtionably ſunk. In the mean time, admiral Montague fell in with the French convoy, but it was now guarded by 14 ſail of the line. As he could not encounter ſuch a force, he returned home, and it was ſafely conveyed into port. Thus, by one of thoſe contradictions which ſo often occur in human affairs, the Britiſh fleet was victorious, and the French were left in ſome meaſure maſters of the ſea. As this engagement however teſtified that the Britiſh ſeamen had not loſt their ancient ſuperiority on their own element, the nation regarded the preſent victory as a pledge of its independence, and very general rejoicings took place in conſequence of it.

In the mean time, the revolutionary ſyſtem of government in the hands of committees of the convention executed at Paris, and of committees of the popular ſocieties throughout the country, was arrived at its higheſt perfection, and proceeded without oppoſition in its ſevere and ſanguinary meaſures.

On the 10th of May Madame Elizabeth, ſiſter of the late king, was ſacrificed by it in conſequence of a decree of the revolutionary tribunal. Multitudes of others of every rank and ſex were daily ſacrificed in a ſimilar manner; the rich in particular were the great objects of perſecution, becauſe the conſiſcation of their property added to the ſtrength of the ruling powers. But neither were the poor ſafe from the bloody vigilance of this new and ſingular government. By the different executions Robeſpierre had contrived to deſtroy every avowed rival. All the conſtituted authorities conſiſted wholly of perſons nominated with his approbation; and as the committees which conducted the buſineſs of the ſtate were at his diſpoſal, his will was irrefiſtible throughout the republic. He met with no oppoſition in the convention; for that body was no longer the turbulent popular aſſembly which it had once appeared; it was little more than a name employed to give ſome ſort of reſpectability to ſuch ſchemes as were propoſed to it.

Amidſt this accumulation, however, of ſeemingly irrefiſtible authority, Robeſpierre was at the brink of ruin. The whole of the old Girondiſt party was indeed ſubdued and ſilent; but many members of the convention ſtill remained attached to it. The party of the Mountain,

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Mountain, by means of whom Robespierre had risen to power, with little satisfaction now found themselves not only disregarded, but ready at every instant to fall a sacrifice to that system of terror which they had contributed to erect. Even the Jacobins themselves, though neither timid nor cautious in the shedding of blood, began to murmur when they saw that awful privilege confined exclusively within a few hands, or rather monopolized by an individual. In this state things remained for some time; and it appeared how possible it is for an individual to govern a great nation even while the whole of that nation is hostile to his power. The banishment or imprisonment of all foreigners, which had long been rigorously practised, prevents us from possessing much accurate information concerning the internal state of France at this period; but it is certain, that one circumstance in particular tended much to accelerate the fall of Robespierre. He had procured a decree to be passed, authorising the committee of public safety to imprison at its pleasure, and bring to trial, any member of the convention. All the individuals of that body found themselves placed by this decree in the hands of a man whose severe and suspicious temper they well knew. Still, however, they were so much surrounded by spies, that it was difficult to form a party or plan of operations; even the majority of the committee of public safety were among the number of the discontented, but they dared not to withstand their chief. At last, on the 25th of July, the convention began to exhibit signs of agitation. It was understood, that in the course of a few days Robespierre would sacrifice a number of the members to his suspicions. On the following day the sitting of the convention was still more tempestuous. In a long speech Robespierre defended his own conduct against those who had reproached him with aspiring to the dictatorship of France. He attacked the party whom he styled *Moderates*, as wishing to overturn the revolutionary government, and to restore the feeble system of the Brissotines. The result of a long debate was, that Robespierre was apparently victorious, and his speech was ordered to be printed. On the 27th the convention appeared ripe for a change: St Just, a member of the committee of public safety, in attempting to defend Robespierre, was repeatedly interrupted; and Billaud Varrennes stood forward and enumerated the crimes, and proclaimed the tyranny, of Robespierre. The speech was received with bursts of applause. Robespierre in vain attempted to defend himself; he was silenced by shouts of execration from every part of the hall. Tallien seconded the former speaker in his accusation. The sitting was declared permanent, and a decree of arrest was passed against Robespierre and a younger brother of his, along with St Just, Couthon, and Lebas. These men left the convention, and found security in the hall of the commune of Paris; where the municipal officers agreed to protect and stand by them. The tocsin was sounded; the armed force was under their command; an insurrection was therefore attempted against the convention: but the sections of Paris refused their support. Very few of the troops could be collected, and these were not firm; the late tyranny had become odious. The hall of the commune was therefore speedily surrounded; and about three o'clock in the morning of the 28th Robespierre and his associates were made prisoners. They had been outlawed

by the convention on account of their resistance. They were not therefore tried, unless for the purpose of identifying their persons; and, in the course of that day, they were executed: 60 of the municipal officers were also executed for joining in their rebellion; and in this way a storm passed over, which at one time threatened to involve the French capital in ruin, and filled all Europe with astonishment. Thus also terminated the career of the most extraordinary man that the French revolution had brought forward. His talents were undoubtedly considerable, and his ambition knew no bounds, bidding defiance to the ordinary feelings of humanity. Had Dumourier possessed his coolness and caution, or had he possessed the military talents of Dumourier, the convention would certainly have been overturned, and we should have seen a second Cromwell on the throne of his murdered sovereign.

After the fall of Robespierre, the convention exhibited no small change of appearance. Instead of that silence which formerly prevailed, all was bustle and noise; all accused each other. There was no longer any leader, and there was no formed party. The former system of terror was declared to be at an end, and a new system of *moderation* succeeded. This was carried to as great a height as the system of terror had formerly been; and all means were taken to render popular the fall of their late tyrant. The committees were organized anew, and their members ordered to be frequently changed. The correspondence between the affiliated Jacobin clubs was prohibited, and at last the Jacobin club itself was abolished. This last event was accomplished with ease; and that society which had been the great engine of the revolution, was itself without resistance overturned. Seventy-one deputies of the Girondist party, who had been imprisoned since the 31st of May 1793, were set at liberty. The name of Lyons was restored to it. Some of the agents of Robespierre were punished, particularly the infamous Carrier, whose cruelties in La Vendée we formerly mentioned. Still, however, the convention appeared so little united and so little decided with regard to objects of the first importance, that in all probability they would not have conducted the important struggle against the nations of Europe with more success than the Girondist party had formerly done, if the revolutionary government and the late system of terror had not already accumulated in their hands such vast resources, and traced out such a plan of procedure, as rendered it an easy matter to preserve their numerous armies in the train of success to which they were now habituated.

The allies in their retreat had left strong garrisons in the French towns which had surrendered to them. These were Condé, Valenciennes, Quefnoy, and Landrecies. They now surrendered to the republican armies with so little resistance, that the conduct of the emperor began to be considered as ambiguous, and he was suspected of having entered into some kind of compromise with the French. This idea proved erroneous; and as soon as the army which had besieged these towns was able to join the grand army under Pichegru and Jourdan, the operations of the campaign were resumed after a suspension of almost two months. The French army divided itself into two bodies. One of these under Jourdan advanced against General Clairfait, who had succeeded the prince of Cobourg in the command

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in the neighbourhood of Maestricht. On the 15th of September the French attacked the whole Austrian posts in an extent of five leagues from Liege to Maestricht. On that and the following day the losses were nearly equal. On the 17th the French with 50 pieces of cannon attacked General Kray in his entrenched camp before Maestricht. M. de Kray was already retiring when General Clairfait arrived with a strong reinforcement, and after a severe combat the French were once more compelled to retire. On the 18th the French renewed the attack with tenfold fury upon every part of the Austrian line, and the whole was compelled to fly to the neighbourhood of Aix-la-Chapelle. General Clairfait now chose a strong position on the banks of the Roer, where he even declared it to be his wish that he might be attacked. But by this time the spirit of his army was humbled, desertions became numerous, and the want of discipline was extreme. On the 1st of October the French crossed the Maese and the Roer, and attacked the whole Austrian posts from Ruremond down to Juliers. After a bloody engagement, the brave and active, though unfortunate, General Clairfait was compelled hastily to cross the Rhine, with the loss of 10 or 12,000 men. The French general did not attempt to cross that river, but one detachment of his army took possession of Coblenz, while others laid close siege to Venlo and Maestricht, which soon surrendered.

The division of the French army, in the mean time, under General Pichegru came down upon Holland, and attacked the allied army under the duke of York between Bois-le-duc and Grave. They forced the advanced post of Bostel. Lieutenant-general Abercromby was sent to attempt to recover this post on the 15th of September, but he found the French in such force that he was obliged to retreat. Indeed the French were discovered to be no less than 80,000 strong in that neighbourhood. The duke of York was unable to contend against a force so superior, and retired across the Maese with the loss of somewhat less than 1500 men. Pichegru immediately laid siege to Bois-le-duc. On the 30th of September, Crevecoeur was taken, and Bois-le-duc surrendered in 10 days thereafter. In it 408 French emigrants were taken prisoners; and these, as well as 700 that had been taken at Nieupoort, 500 at Sluys, and 1100 at Valenciennes, were all put to death, agreeably to the rigorous law formerly made by the convention. The French now followed the duke of York across the Maese. Upon this the greater part of the allied army under his royal highness crossed the Rhine and took post at Arnheim. The remaining part of the army followed soon after, and Nimeguen was occupied by the French on the 7th of November. The duke of Brunswick was at this time requested to take the command of the allied army, to protect Holland, if possible. He came to Arnheim for that purpose; but after examining the state of things there, he declined the undertaking. The allied troops had now so often fled before their victorious and almost innumerable enemies, they had so often been in want of every necessary, and had been received so ill by the inhabitants of the countries through which they passed, among whom the French cause was extremely popular, that they had lost that regularity of conduct and discipline which alone can afford a secure prospect of success in military affairs.

The French, on the contrary, well received, abounding in every thing, and proud of fighting in a popular cause, now acted with much order, and submitted to the strictest discipline. In addition to all these advantages, the French leaders had the dexterity to persuade the world that new and unknown arts were employed to give aid to their cause. At this period the *telegraphe* was first used for conveying intelligence from the frontiers to the capital, and from the capital to the frontiers. (See *TELEGRAPHE*). Balloons were also used by the French during this campaign to procure knowledge of the position of the enemy. An engineer ascended with the balloon, which was suffered to rise to a great height, but prevented from flying away by a long cord. He made plans of the enemies encampment; and during an attack he sent down notice of every hostile movement. In the affairs of men, and more especially in military transactions, opinion is of more importance than reality. The French soldiers confided in their own officers as men possessed of a kind of omniscience, while the allied troops, no doubt, beheld with anxiety a new contrivance employed against them, whose importance would be readily magnified by credulity and ignorance. With all these advantages, however, after the capture of Nimeguen, they once more made a halt in their career, and abstained from the attack of Holland, which now seemed almost prostrate before them.

While these events occurred in the north, the French arms were scarcely less successful on the side of Spain. Bellegarde was taken; in the Western Pyrenees, Fontarabie surrendered, and also St Sebastian; the whole kingdom of Spain seemed panic struck. That feeble government, with an almost impregnable frontier, and the most powerful fortresses, could make little resistance; and the difficult nature of their country was their only protection. The history of this war is only a history of victories on the part of the French. In the Eastern Pyrenees, on the 17th of November, the French general Dugommier was killed in an engagement, in which his army was successful. On the 20th of that month the French again attacked the Spaniards, and routed them by means of the bayonet, without firing a single musket-shot. Tents, baggage, and cannon, for an army of 50,000 men, fell into the hand of the conquerors, along with a great part of the province of Navarre. Towards the end of the year, an army of 40,000 Spaniards, entrenched behind 80 redoubts, the labour of six months, suffered themselves to be completely routed; their general count de La Union was found dead on the field of battle, and the whole Spanish artillery was taken. In three days thereafter, the fort Fernando de Figueres, containing a garrison of 9107 men, surrendered, although it mounted 171 pieces of cannon, and possessed abundance of provisions. The French continued their conquests; Rosas was taken, and the whole province of Catalonia was left at the mercy of the invaders.

The successes of this wonderful campaign were not yet terminated; and the last part of them is perhaps the most important, although no great effort was necessary to its execution. The winter now set in with uncommon severity. For some years past the seasons of Europe had been uncommonly mild; there had been little frost in winter, and no intense heat in summer. But during the late season the weather had long been remarkably

markedly dry till the latter part of harvest, when there fell a considerable, though by no means unusual, quantity of rain. Towards the end of December a severe frost bound up the whole of the rivers and lakes of Holland. The Waal was frozen over in the beginning of January; a circumstance which had not occurred for 14 years past. Taking advantage of this, the French crossed that river, and with little opposition seized the important pass of Bommel, which at other seasons is so strong by its inundations. The allied army had been joined by 17,000 Austrians, and had received orders to defend Holland to the last. They did so, and were successful in repulsing the French for some days between the Waal and the Leck; but the republican army, amounting to 70,000 men, having at last advanced in full force, the allied troops were compelled to retire across the Yssel into Westphalia. In the course of their march through this desert country, in the midst of severe frost and a deep snow, they are said to have suffered incredible hardships, and to have lost a very great number of men. The French, in the mean time, advanced rapidly across the country to the Zuyder sea, to prevent the inhabitants from flying, and carrying off their property. On the 16th of January 1795, a party of horse, without resistance, took possession of Amsterdam. The other towns surrendered at discretion. In consequence of an order from the States General, the strong fortresses of Bergen-op-zoon, Williamstadt, Breda, &c. opened their gates to the French. The fleet and the shipping were fixed by the intense frost in their stations, and fell a prey to the enemy; who thus, with little effort, made a complete conquest of this populous and once powerful country. The French were well received by the people at large. The power of the Stadtholder had been supported among them merely by the influence of Prussia and England. Through hatred to this office, which had now become odious chiefly to the mercantile aristocracy of Holland, they were little attached to their allies, and gave them, during the present war, as little support as possible. The Stadtholder and his family now fled to England. The French declared, that they did not mean to make subjects but allies of the Dutch, and invited them to call together popular assemblies for settling their own government, under the protection of the French republic.

Thus terminated a campaign, the most astonishing, perhaps, that has been known in the history of mankind. In the course of it, even before the conquest of Holland, the French had taken 2000 pieces of cannon and 60,000 prisoners. After that event, the conquered territories added to them a population of nearly 14 millions of people. Luxembourg and Mentz were the only places on this side of the Rhine that resisted them. The former was closely blockaded, for the purpose of compelling it to surrender; the latter was several times assaulted, but successfully held out.

Europe was now weary of this bloody strife. The German Diet of Ratisbon declared its resolution to take measures for procuring peace. The Grand Duke of Tuscany concluded a treaty with the French republic. France itself, exhausted by massacres, emigrations, and the terrible efforts which it had made, wished for tranquillity; and the Convention found it necessary to declare that they were willing to treat for peace with any of the powers of Europe, upon honourable terms.

The frequent changes, however, which have with astonishing rapidity taken place in the mode of conducting French affairs, and the different principles displayed by the different factions as they successively got into power, have produced in Great Britain and Austria a very general persuasion that no peace concluded with the present Convention could either be honourable or permanent; and therefore these two mighty nations have resolved to continue the war with redoubled vigour. In support of the wisdom of this resolution, it has been observed, that the hatred of the Mountain to the Girondists was such, that it would have violated any treaty which had been concluded with them; that when Robespierre became all powerful, and terror was the order of the day, all former measures were changed, and peace or war made wholly subservient to the ambitious views of that relentless tyrant; that Tallien, having originally belonged to the Mountain, introduced the present system of moderation, not from principle, but only to reconcile the people to his usurped authority, and the fall of his bloody predecessor; that he may suddenly change his measures, or be denounced and executed by the influence of some more daring demagogue, who would again introduce the system of terror; and that in such a state of uncertainty, the only consequence to be expected from making peace at present is, that it would furnish the next faction which may gain the ascendancy in France with an opportunity of attacking the allies when less prepared to receive them. Such reasoning as this has been admitted in the British parliament, where a loan of six millions Sterling has been voted to the Emperor, to enable him to begin the ensuing campaign with an army of 200,000 men. In what manner the war ought to be conducted, it is not for us to say. The British nation seems to rest its hopes on its superiority at sea; and the greatest exertions are making to augment and man the navy. But we are here under the necessity of dropping this subject, without being able completely to fulfil the promise which we made to our readers at the end of the article FRANCE. There is as little appearance at present of peace, and a steady government being soon restored to that distracted country, as there was at the beginning of the troubles; and there is not the smallest probability that the republican constitution, framed by the Convention, will last one year after the dissolution of that assembly.

In tracing the origin and progress of this wonderful revolution, we have consulted every work from which we had reason to look for information, and we have confined ourselves to a simple narration of facts, seldom giving way to the reflections which they suggested. Our facts, too, have been generally stated from writers who are supposed to be not unfriendly to democracy, that they may gain the fuller credit with our own reformers; for in the most favourable point of view in which those facts can be placed, they furnish the strongest objection possible to all their proposed reformatations of the British constitution. If the horrible deeds of darkness which have been acted on the theatre of France cannot make us contented with the government under which we live, and which has been brought to its present state of perfection, not by the metaphysical speculations of reclusive philosophers, but by observation and the practical experience of ages, we shall be considered by posterity as a

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people incapable of instruction, and ripe for the greatest miseries in which we may be involved.

REVULSION, in medicine, turning a flux of humours from one part to another by bleeding, cupping, friction, sinapisms, blisters, fomentations, bathings, issues, setons, strong purging of the bowels, &c.

REYN (Jan de), an eminent history and portrait painter, born at Dunkirk in 1610. He had the good fortune to be a disciple of Vandyke, was the first performer in his school, and was so attached to his master that he followed him to London, where it is thought he continued as long as he lived. In these kingdoms he is mostly known by the name of *Lang Jan*. He died in 1678: and it is imagined that the scarcity of his works is occasioned by so many of them being imputed to Vandyke; a circumstance which, if true, is beyond any thing that could be said in his praise.

REYNOLDS (Sir Joshua), the celebrated painter, was, on July the 16th 1723, born at Plympton, a small town in Devonshire. His father was minister of the parish, and also master of the grammar school; and being a man of learning and philanthropy, he was beloved and respected by all to whom he was known.—Such a man, it will naturally be supposed, was assiduous in the cultivation of the minds of his children, among whom his son Joshua shone conspicuous, by displaying at a very early period a superiority of genius, and the rudiments of a correct taste. Unlike other boys, who generally content themselves with giving a literal explanation of their author, regardless of his beauties or his faults, young Reynolds attended to both these, displaying a happy knowledge of what he read, and entering with ardour into the spirit of his author. He discovered likewise talents for composition, and a natural propensity to drawing, in which his friends and intimates thought him qualified to excel. Emulation was a distinguishing feature in his mind, which his father perceived with the delight natural to a parent; and designing him for the church, in which he hoped that his talents might raise him to eminence, he sent him to one of the universities.

Soon after this period he grew passionately fond of painting; and, by the perusal of Richardson's theory of that art, was determined to make it his profession through life. At his own earnest request, therefore, he was removed to London; and about the year 1742 became a pupil to Mr Hudson, who, though not himself an eminent painter was preceptor to several who afterwards excelled in the art. One of the first advices which he gave to Mr Reynolds was to copy carefully Guercino's drawings. This was done with such skill,

that many of the copies are said to be now preserved in the cabinets of the curious as the originals of that very great master.

About the year 1749, Mr Reynolds went to Italy under the auspices, and in the company, of the late Lord (then Commodore) Keppel, who was appointed to the command of the British Squadron in the Mediterranean. In this garden of the world, this magic seat of the arts, he failed not to visit the schools of the great masters, to study the productions of different ages, and to contemplate with unwearied attention the various beauties which are characteristic of each. His labour here, as has been observed of another painter, was "the labour of love, not the task of the hireling;" and how much he profited by it is known to all Europe.

Having remained about two years in Italy, and studied the language as well as the arts of the country with great success, he returned to England, improved by travel and refined by education. On the road to London from the port where he landed, he accidentally found in the inn where he lodged Johnson's life of Savage; and was so taken with the charms of composition, and the masterly delineation of character displayed in that performance, that, having begun to read it while leaning with his arm on the chimney-piece, he continued in that attitude insensible of pain till he was hardly able to raise his hand to his head. The admiration of the work naturally led him to seek the acquaintance of its author, who continued one of his sincerest admirers and warmest friends, till 1784, when they were separated by the stroke of death.

The first thing that distinguished him after his return to his native country, was a full length portrait of Commodore Keppel; which in the polite circles was spoken of in terms of the highest encomium, and testified to what a degree of eminence he had arrived in his profession. This was followed by a portrait of Lord Edgewcombe, and a few others, which at once introduced him to the first business in portrait painting; and that branch of the art he cultivated with such success as will for ever establish his fame with all descriptions of refined society. Having painted some of the first-rate beauties of the age, the polite world flocked to see the graces and the charms of his pencil; and he soon became the most fashionable painter, not only in England, but in all Europe. He has indeed preserved the resemblance of so many illustrious characters, that we feel the less regret for his having left behind him so few historical paintings; though what he has done in that way shows (A) him to have been qualified to excel in both departments. The only landscape, perhaps, which he

(A) As the lovers of painting may wish to have a catalogue of this great master's historical pieces, we subjoin the following from the European Magazine, which we have good reason to believe accurate, as the editors of that miscellany grudge neither trouble nor expence to procure authentic information. Sir Joshua's principal historical pieces, then, are the following: Hope nursing Love; Venus chastising Cupid for having learned to cast accounts; Count Ugolino in the dungeon; the calling of Samuel; Ariadne; a Captain of banditti; Beggar Boy; a Lady in the character of St Agnes; Thais; Dionysius the Areopagite; an infant Jupiter; Master Crewe in the character of Henry VIII; the death of Dido; a Child asleep; Cupid sleeping; Covent Garden Cupid; Cupid in the Clouds; Cupids painting; Boy laughing; Master Herbert in the character of Bacchus; Hebe; Miss Meyer in the character of Hebe; Madona, a head; the Black-guard Mercury; a little boy (Samuel) praying; and old Man reading; Love losing the zone of Beauty; the Children in the Wood; Cleo-

olds. he ever painted, except those beautiful and chaste ones which compose the back grounds of many of his portraits, is "A View on the Thames from Richmond," which in 1784 was exhibited by the Society for Promoting Painting and Design in Liverpool.

In 1764 Mr Reynolds had the merit of being the first promoter of that club, which, having long existed without a name, became at last distinguished by the appellation of the *Literary Club*. Upon the foundation of the Royal Academy of Painting, Sculpture, and Architecture, he was appointed president; and his acknowledged excellence in his profession made the appointment acceptable to all the lovers of art. To add to the dignity of this new institution, his majesty conferred on the president the honour of knighthood; and Sir Joshua delivered his first discourse at the opening of the Academy on January 2. 1769. The merit of that discourse has been universally admitted among painters; but it contains some directions respecting the proper mode of prosecuting their studies, to which every student of every art would do well to pay attention. "I would chiefly recommend (says he), that an implicit obedience to the *rules of art*, as established by the practice of the great masters, should be exacted from the young students. That those models, which have passed through the approbation of ages, should be considered by them as perfect and infallible guides; as subjects for their imitation, not their criticism. I am confident, that this is the only efficacious method of making a progress in the arts; and that he who sets out with doubting, will find life finished before he becomes master of the rudiments. For it may be laid down as a maxim, that he who begins by presuming on his own sense, has ended his studies as soon as he has commenced them. Every opportunity, therefore, should be taken to discountenance that false and vulgar opinion, that rules are the fetters of genius. They are fetters only to men of no genius; as that armour which, upon the strong, becomes an ornament and a defence, upon the weak and mishapen turns into a load, and cripples the body which it was made to protect."

Each succeeding year, on the distribution of the prizes, Sir Joshua delivered to the students a discourse of equal merit with this: and perhaps we do not hazard too much when we say, that, from the whole collected, the lover of belles lettres and the fine arts will acquire juster notions of what is meant by taste in general, and better rules for acquiring a correct taste, than from multitudes of those volumes which have been professedly written on the subject.

In the autumn of 1785 he went to Brussels, where

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he expended about £. 1000 on the purchase of paintings, which, having been taken from the different monasteries and religious houses in Flanders and Germany, were then exposed to sale by the command of the Emperor Joseph I. Gainsborough and he had engaged to paint each other's portrait; and the canvas for both being actually stretched, Sir Joshua gave one sitting to his distinguished rival; but, to the regret of every admirer of the art, the unexpected death of the latter prevented all further progress.

In 1790 he was anxiously desirous to procure the vacant professorship of perspective in the academy for Mr Bonomi, an Italian architect; but that artist not having been yet elected, an associate was of course no academician, and it became necessary to raise him to those situations, in order to qualify him for being a professor. Mr Gilpin being his competitor for the associateship, the numbers on the ballot proved equal, when the president by his casting vote decided the election in favour of his friend, who was thereby advanced so far towards the professorship. Soon after this, an academic seat being vacant, Sir Joshua exerted all his influence to obtain it for Mr Bonomi; but finding himself outvoted by a majority of two to one, he quitted the chair with great dissatisfaction, and next day sent to the secretary of the academy a formal resignation of the office, which for twenty-one years he had filled with honour to himself and his country. His indignation, however, subsiding, he suffered himself to be prevailed upon to return to the chair, which within a year and a half he was again desirous to quit for a better reason.

Finding a disease of languor, occasioned by an enlargement of the liver, to which he had for some time been subject, increase upon him, and daily expecting the total loss of sight, he wrote a letter to the academy, intimating his intention to resign the office of president on account of bodily infirmities, which disabled him from executing the duties of it to his own satisfaction. The academicians received this intelligence with the respectful concern due to the talents and virtues of their president; and either then did enter, or designed to enter, into a resolution, honourable to all parties, namely, that a deputation from the whole body of the academy should wait upon him, and inform him of their wish, that the authority and privileges of the office of president might be his during his life; declaring their willingness to permit the performance of any of its duties which might be irksome to him by a deputy.

From this period Sir Joshua never painted more. The last effort of his pencil was the portrait of the Honourable Charles James Fox, which was executed in his

C E

best

patra dissolving the Pearl; Garrick in the character of Kiteley; Garrick between Tragedy and Comedy; Mrs Abingdon in the character of Comedy; a Child surrounded by Guardian Angels; Miss Beauclerc in the character of Spenser's Una; Resignation; the Duchesse of Manchester in the character of Diana; Lady Blake in the character of Juno; Mrs Sheridan in the character of St Cecilia; Edwin, from Beattie's Minstrel; the Nativity, Four Cardinal Virtues, and Faith, Hope, and Charity, for the window of New College Chapel, Oxford; the Studious Boy; a Bacchante; a daughter of Lord W. Gordon as an Angel; the Holy Family; the Cottagers, from Thomson; the Vestal; the Careful Shepherdess; a Gypsy telling Fortunes; the infant Hercules strangling the Serpent; the Mouse-trap girl; Venus; Cornelia and her Children; the Bird; Melancholy; Mrs Siddons in Tragedy; Head of Lear; Mrs Talma in the character of Miranda, with Prospero and Caliban; Robin Goodfellow; Death of Cardinal Beaufort; Macbeth, with the Caldron of the Witches.

Reynolds. best style, and shows that his fancy, his imagination, and his other great powers in the art which he professed, remained unabated to the end of his life. When the last touches were given to this picture,

"The hand of Reynolds fell, to rise no more."

On Thursday February the 23d 1792, the world was deprived of this amiable man and excellent artist at the age of 68 years; a man than whom no one, according to Johnson, had passed through life with more observation of men and manners. The following character of him is said to be the production of Mr Burke:

"His illness was long, but borne with a mild and cheerful fortitude, without the least mixture of any thing irritable or querulous, agreeably to the placid and even tenor of his whole life. He had from the beginning of his malady a distinct view of his dissolution, which he contemplated with that entire composure which nothing but the innocence, integrity, and usefulness of his life, and an unaffected submission to the will of Providence, could bestow. In this situation he had every consolation from family tenderness, which his tenderness to his family had always merited.

"Sir Joshua Reynolds was, on very many accounts, one of the most memorable men of his time: He was the first Englishman who added the praise of the elegant arts to the other glories of his country. In taste, in grace, in facility, in happy invention, and in the richness and harmony of colouring, he was equal to the great masters of the renowned ages. In portrait he went beyond them; for he communicated to that description of the art in which English artists are the most engaged, a variety, a fancy, and a dignity, derived from the higher branches, which even those who professed them in a superior manner did not always preserve when they delineated individual nature. His portraits remind the spectator of the invention of history and the amenity of landscape. In painting portraits, he appears not to be raised upon that platform, but to descend to it from a higher sphere. His paintings illustrate his lessons, and his lessons seem to be derived from his paintings.

"He possessed the theory as perfectly as the practice of his art. To be such a painter, he was a profound and penetrating philosopher.

"In full happiness of foreign and domestic fame, admired by the expert in art, and by the learned in science, courted by the great, caressed by sovereign powers, and celebrated by distinguished poets, his native humility, modesty, and candour, never forsook him, even on surprise or provocation; nor was the least degree of arrogance or assumption visible to the most scrutinizing eye in any part of his conduct or discourse.

"His talents of every kind—powerful from nature, and not meanly cultivated in letters—his social virtues in all the relations and all the habitudes of life, rendered him the centre of a very great and unparalleled variety

of agreeable societies, which will be dissipated by his death. He had too much merit not to excite some jealousy, too much innocence to provoke any enmity. The loss of no man of his time can be felt with more sincere, general, and unmixed sorrow."

REZAN, or REZANSKOI, an ancient town of Russia, and capital of a duchy of the same name, with an archbishop's see. It was formerly considerable for its extent and riches; but it was almost ruined by the Tartars in 1568. The country is populous, and was formerly governed by its own princes. E. Long. 42. 37. N. Lat. 54. 54.

RHADAMANTHUS, a severe judge, and king of Lydia; the poets make him one of the three judges of hell.

RHAGADES, in medicine, denotes chaps or clefts in any part of the body. If seated in the anus, and recent, the patient must sit still, and sit over the steam of warm water. The epulotic cerate may also be applied. If the lips of these fissures are callous, they must be cut or otherwise treated as to become new ulcerations.

RHAMA, or RAMA, an incarnate deity of the first rank, in Indian mythology. Sir William Jones believes he was the Dionysos (A) of the Greeks, whom they named *Bromius*, without knowing why; and *Bugenes*, when they represented him *horned*, as well as *Lyaos* and *Eleutherios* the deliverer, and *Triambos* or *Dythyrambos* the triumphant. "Most of those titles (says Sir William) were adopted by the Romans, by whom he was called *Bruma*, *Tauriformis*, *Liber*, and *Triumphus*; and both nations had records or traditional accounts of his giving laws to men and deciding their contests, of his improving navigation and commerce, and, what may appear yet more observable, of his conquering India and other countries with an army of satyrs, commanded by no less a personage than Pan; whom Lillius Giralduus, on what authority I know not, asserts to have resided in Iberia 'when he had returned, says the learned mythologist, from the Indian war, in which he accompanied Bacchus.' It were superfluous in a mere essay to run any length in the parallel between this European god and the sovereign of Ayodhya, whom the Hindoos believe to have been an appearance on earth of the preserving power; to have been a conqueror of the highest renown, and the deliverer of nations from tyrants, as well as of his consort Sita from the giant Ravan king of Lanca; and to have commanded in chief a numerous and intrepid race of those large monkeys, which our naturalists, or some of them, have denominated Indian satyrs: his general, the prince of satyrs, was named *Hanumat*, or "with high cheek bones;" and, with workmen of such agility, he soon raised a bridge of rocks over the sea, part of which, say the Hindoos, yet remains; and it is probable the series of rocks to which the Mussulmans or the Portuguese have given the foolish name of *Adam's* (it should be called *Rama's*) bridge. Might not this

(A) The learned president, whose death will be lamented by every scholar, by the orientalist and the divine especially, imagines, that this would fully appear from comparing together the *Dionysiaca* of Nonnus and the *Ramayana* of Valmiki, the first poet of the Hindoos. He adds, that, in his opinion, Rhama was the son of Cush, and that he might have established the first regular government in that part of Asia, in which his exploits are said to have been performed.

army of satyrs have been only a race of mountaineers, whom Rama, if such a monarch ever existed, had civilized? However that may be, the large breed of Indian apes is at this moment held in high veneration by the Hindoos, and fed with devotion by the Brahmans, who seem in two or three places on the banks of the Ganges to have a regular endowment for the support of them: they live in tribes of three or four hundred, are wonderfully gentle (I speak as an eye-witness), and appear to have some kind of order and subordination in their little sylvan polity." The festival of Rhama is held on the 9th day of the new moon of Chaitra, on which the war of Lauca is dramatically represented, concluding with an exhibition of the fire ordeal, by which the victor's wife Sita gave proof of her connubial fidelity. Among the Hindoos there are a variety of very fine dramas of great antiquity on the story of Rhama.

There are three Rhamas mentioned in the Indian mythology, who, together with Krishna, the darling god of the Indian women, are described as youths of perfect beauty. The third Rhama is Krishna's elder brother, and is considered as the eighth Avatar (B), invested with an emanation of his divine radiance. Like all the Avatars, Rhama is painted with gemmed Ethiopian or Parthian coronets; with rays encircling his head, jewels in his ears, two necklaces, one straight and one pendant on his bosom, with dropping gems; garlands of well-disposed many-coloured flowers, or collars of pearls, hanging down below his waist; loose mantles of golden tissue or dyed silk, embroidered on the hems with flowers elegantly thrown over one shoulder, and folded like ribbands across the breast; with bracelets, two on one arm and on each wrist: all the Avatars are naked to the waists, and uniformly with dark azure flesh, in allusion probably to the tint of that primordial fluid on which Narayan moved in the beginning of time; but their skirts are bright yellow, the colour of the curious pericarpium in the centre of the water-lily.

RHAMNUS, the BUCKTHORN, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 43d order, *Dumosa*. The calyx is tubulous, with five minute scales surrounding the stamina; there is no corolla; the fruit is a berry. There are 27 species; of which the most remarkable are,

1. The catharticus, or common purging buckthorn, growing naturally in some parts of Britain. This grows to the height of 12 or 14 feet, with many irregular branches at the extremities. The leaves are oval-lanceolate, finely serrated on the edges, their nerves converging together. The flowers grow in clusters, one on each footstalk, white, and in this species divided into four segments: the fruit is a round black berry, containing four seeds. The juice of the berries is a

strong purgative, and is made use of for making the common syrup of buckthorn kept in the shops. The bark is emetic: the juice of the unripe berries with alum dyes yellow, of the ripe ones a fine green; the bark also dyes yellow. The green colour yielded by the berries, called by the French *verde-velle*, is much esteemed by miniature painters.

Of this species there are two varieties, viz. the dwarf buckthorn, a shrub of about a yard high, of a greenish colour but little show; and the long-leaved dwarf buckthorn, which is a larger shrub, with leaves somewhat larger, but in other respects very similar to the dwarf buckthorn.

2. The zizyphus is the species in which the lac insect* forms its cells, and produces the wax called gum-lac. See LACCA. * See Coecus.

3. The lotus has the leaves, prickles, flowers, and fruit, of the zizyphus or jube; only with this difference, that the fruit is here round, smaller, and more luscious, and at the same time the branches, like those of the paliurus, are neither so much jointed nor crooked. The fruit is in great repute, tastes something like gingerbread, and is sold in the markets all over the southern districts of these kingdoms. The Arabs call it *aneb enta el seedra*, or *the jube of the seedra*; which Olavus Celsus had so high an opinion of, that he has described it as the dudaim of the scriptures. This species is very common in the Jereede and other parts of Bombay; and has been supposed by some to be the same plant with that celebrated by Homer for its enchanting property; though the latter is more generally supposed to have been a species of *Diospyros* (which see). It is proper, however, to distinguish between both these shrubs and an herb often mentioned by the ancients under the name of *lotus*, which Homer mentions as being fed upon by the horses of Achilles, and Virgil as proper to increase the milk of sheep (see *Lorus*). They are also different from the Egyptian *lotus* described by Herodotus; for which see *Nymphaea*.

4. The frangula, or berry-bearing alder, is a deciduous shrub, a native of England and most of the northern parts of Europe, and affords several varieties.

5. The Alpine, rough-leaved frangula, or berry-bearing alder, is also a deciduous shrub, and native of the Alps. It differs in no respect from the common sort, except that it has no thorns, and that it will grow to be rather taller, with tough, large, and doubly laciniated leaves. The smooth-leaved Alpine frangula is a variety of this species, with smooth leaves and of a lower growth.

6. The paliurus, or thorn of Christ, is a deciduous shrub or tree, a native of Palestine, Spain, Portugal, and Italy. It will grow to nearly the height of 14

C c 2

feet,

Rhamnus.

(B) *Avatar* means the descent of the deity in his capacity of preserver. The three first of these descents relate to some stupendous convulsion of our globe from the fountains of the deep, and the fourth exhibits the miraculous punishment of pride and impiety, appearing to refer to the deluge. Three of the others were ordained for the overthrow of tyrants or giants. Of these Avatars we have mentioned in the text, that Rhama is the eighth; Buddha, who appears to have been a reformer of the doctrines contained in Vedas, is the ninth: the tenth Avatar, we are told, is yet to come, and is expected to appear mounted (like the crowned conqueror in the Apocalypse) on a white horse, with a scimeter blazing like a comet to mow down all incorrigible and impetent offenders who shall then be on the earth.

Rhamnus,
Rham-
phastos.

fect, and is armed with sharp thorns, two of which are at each joint, one of which is about half an inch long, straight, and upright; the other is scarcely half that length, and bent backward; and between them is the bud for next year's shoot. June is the time of flowering, and the flowers are succeeded by a small fruit, surrounded by a membrane. "This plant (says Hanbury) is undoubtedly the sort of which the crown of thorns for our Blessed Saviour was composed. The branches are very pliant, and the spines of it are at every joint strong and sharp. It grows naturally about Jerusalem, as well as in many parts of Judæa; and there is no doubt that the barbarous Jews would make choice of it for their cruel purpose. But what farther confirms the truth of these thorns being then used, are the ancient pictures of our Blessed Saviour's crucifixion. The thorns of the crown on his head exactly answer to those of this tree; and there is great reason to suppose these were taken from the earliest paintings of the Lord of Life: and even now our modern painters copy from them, and represent the crown as composed of these thorns. These plants, therefore, should principally have a share in those parts of the plantation that are more peculiarly designed for religious retirement; for they will prove excellent monitors, and conduce to due reflection on and gratitude to 'Him who hath loved us, and has washed us from our sins,' &c.

7. The common alaternus is an evergreen tree, and native of the south of Europe. There are several varieties of this species; the most remarkable of which are the broad-leaved and the jagged-leaved alaternus, which have all been confounded with the phillyrea.

8. The infectorius, or narrow-leaved buckthorn, is an evergreen shrub or tree, and native of Spain. It grows to the height of 10 or 12 feet, and sends forth several branches from the bottom to the top. They are covered with a blackish or dark-coloured bark, and each of them is terminated by a long sharp thorn. The fruit continues on the trees all winter, making a beautiful appearance among the narrow-clustered leaves at that season.

9. The oleoides, or olive-leaved buckthorn, is an evergreen shrub, and native of Spain, and grows to the height of 8 or 10 feet. It sends forth numerous branches, each of which is terminated by a long sharp spine. The flowers are small, of a whitish green colour, and are succeeded by round black berries.

RHAMPHASTOS, in ornithology, a genus belonging to the order of picæ. The bill is very large, and serrated outwardly. The nostrils are situated behind the base of the beak; and in most of the species the feet are toed, and placed two forwards and two backwards. The tongue is long, narrow, and feathered on the edges. Mr Latham enumerates 15 different species; of which the toucans are the most remarkable, and were formerly divided into four or five varieties, though Mr Latham makes them distinct species, of which we shall only describe that called the red-beaked toucan.

This bird is about the size of a jackdaw, and of a similar shape, with a large head to support its monstrous bill: this bill, from the angles of the mouth to its point, is six inches and an half; and its breadth in the thickest part is a little more than two. Its thickness

near the head is one inch and a quarter; and it is a little rounded along the top of the upper chap, the under side being round also; the whole of the bill extremely slight, and a little thicker than parchment. The upper chap is of a bright yellow, except on each side, which is of a fine scarlet colour; as is also the lower chap, except at the base, which is purple. Between the head and the bill there is a black line of separation all round the base of the bill; in the upper part of which the nostrils are placed, and are almost covered with feathers; which has occasioned some writers to say that the toucan has no nostrils. Round the eyes, on each side of the head, is a space of bluish skin, void of feathers; above which the head is black, except a white spot on each side joining to the base of the upper chap. The hinder part of the neck, the back, wings, tail, belly, and thighs, are black. The under side of the head, throat, and the beginning of the breast, are white. Between the white on the breast, and the black on the belly, is a space of red feathers, in the form of a new moon, with its horns upwards. The legs, feet, and claws, are of an ash-colour; and the toes stand like those of parrots, two before and two behind.

It is reported by travellers, that this bird, though furnished with so formidable a beak, is harmless and gentle, being so easily made tame as to sit and hatch its young in houses. It feeds chiefly upon pepper, which it devours very greedily, gorging itself in such a manner that it voids it crude and uncooked. This, however, is no objection to the natives from using it again: they even prefer it before that pepper which is fresh gathered from the tree; and seem persuaded that the strength and heat of the pepper is qualified by the bird, and that all its noxious qualities are thus exhausted.

Whatever be the truth of this report, nothing is more certain than that the toucan lives only upon a vegetable diet; and, in a domestic state, to which it is frequently brought in the warm countries where it is bred, it is seen to prefer such food to all other. Pozzo, who bred one tame, asserts, that it leaped up and down, wagged the tail, and cried with a voice resembling that of a magpie. It fed upon the same things that parrots do; but was most greedy of grapes, which, being plucked off one by one, and thrown in the air, it would most dexterously catch before they fell to the ground. Its bill, he adds, was hollow, and upon that account very light, so that it had but little strength in so apparently formidable a weapon; nor could it peck or strike smartly therewith. But its tongue seemed to assist the efforts of this unwieldy machine: it was long, thin, and flat, not unlike one of the feathers on the neck of a dunghill cock; this it moved up and down, and often extended five or six inches from the bill. It was of a flesh colour, and remarkably fringed on each side with very small filaments, exactly resembling a feather.

It is probable that this long tongue has greater strength than the thin hollow beak that contains it. It is likely that the beak is only a kind of sheath for this peculiar instrument, used by the toucan, not only in making itself a nest, but also in obtaining its provision. Nothing is more certain, than that this bird builds its nest in holes of trees, which have been previously

Plate
LXXXVII.

RHAPIS, in botany; A genus of the monogynia order, belonging to the hexandria class of plants; and in the natural method ranking under the first order, *Palmae*. The calyx is a monophyllous trifid spatha; the corolla monopetalous and trifid. There are two species, *viz.* 1. *Flabilliformis*, or ground-ratan, a native of China; 2. *Arundinacea*, simple leaved rhapsis, a native of Carolina.

RHAPSODY, in antiquity, persons who made a business of singing pieces of Homer's poems. Cuper informs us, that the Rhapsodi were clothed in red when they sung the Iliad, and in blue when they sung the Odyssey. They performed on the theatres, and sometimes strove for prizes in contests of poetry, singing, &c. After the two antagonists had finished their parts, the two pieces or papers they were written in were joined together again; whence the name, *viz.* from *ῥαπτω*, *suō*, and *ὁδὸν canticum*: but there seem to have been other Rhapsodi of more antiquity than these people, who composed heroic poems or songs in praise of heroes and great men, and sung their own compositions from town to town for a livelihood; of which profession Homer himself is said to have been. See **BARD**.

RHAPSODI, **RHAPSODISTS**, in antiquity, persons who made a business of singing pieces of Homer's poems. Cuper informs us, that the Rhapsodi were clothed in red when they sung the Iliad, and in blue when they sung the Odyssey. They performed on the theatres, and sometimes strove for prizes in contests of poetry, singing, &c. After the two antagonists had finished their parts, the two pieces or papers they were written in were joined together again; whence the name, *viz.* from *ῥαπτω*, *suō*, and *ὁδὸν canticum*: but there seem to have been other Rhapsodi of more antiquity than these people, who composed heroic poems or songs in praise of heroes and great men, and sung their own compositions from town to town for a livelihood; of which profession Homer himself is said to have been. See **BARD**.

RHAPSODOMANCY, an ancient kind of divination performed by pitching on a passage of a poet at hazard, and reckoning on it as a prediction of what was to come to pass. There were various ways of practising this rhapsodomancy. Sometimes they wrote several papers or sentences of a poet on so many pieces of wood, paper, or the like, shook them together in an urn, and drew out one which was accounted the lot: sometimes they cast dice on a table whereon verses were written, and that whereon the die lodged contained the prediction. A third manner was by opening a book, and pitching on some verse at first sight. This method they particularly called the *sortes Prænestinae*; and afterwards, according to the poet, made use of, *sortes Homericae*, *sortes Virgilianæ*, &c. See **SORTES**.

RHAPSODY, in antiquity, a discourse in verse sung or rehearsed by a rhapsodist. Others will have rhapsody to signify a collection of verses, especially

those of Homer, which having been a long time dispersed in pieces and fragments, were at length by Pifistratus's order digested into books called *rhapsodies*, from *ῥαπτω* *suō*, and *ὁδὸν canticum*. Hence, among moderns, *rhapsody* is also used for an assemblage of passages, thoughts, and authorities, raked together from divers authors, to compose some new piece.

RHE, or **REE**, a little island in the Bay of Biscay, near the coast of Aunis in France. It was taken during the war with France which ended in 1763, in the expedition commanded by Hawke and Mordaunt.

RHEA AMERICANA. The American ostrich of authors has been frequently mentioned, but till of late years very imperfectly known; being blended by some with other genera, although forming of itself a distinct one, differing in many things from all others. The older writers, however, have kept it separate. It does not occur to us whether any author has figured this bird except *Nieremberg*, whose representation conveys no just idea, which is wonderful, as it is to be met with in sufficient plenty in various parts of South America; nor has the bird itself made its appearance in the cabinets of collectors, until the one now in the Leverian museum.

M. Bâjon, in his *Mem. sur Cayenne*, gives a figure and description of the jabirus, and seems clear that this bird is no other than the ostrich of America. From this assertion, Mr Latham, in his *Synopsis*, leaves the matter undecided; but this author, in his *Index Ornithol.* from having met with the specimen above alluded to, and supported in an account of its manners given by Molina in his *Hist. Nat. du Chili*, treats this matter on more certain grounds, so as to enable us to give the following description.

In size the American ostrich is very little inferior to the common one: the bill is sloped not unlike that of a goose, being flat on the top and rounded at the end: the eyes are black, and the lids furnished with hairs: the head is rounded, and covered with downy feathers: the neck is two feet eight inches long, and feathered also: from the tip of one wing to that of the other extended, the length is eight feet; but from the want of continuity of the webs of the feathers, and their laxity of texture, the bird is unable to raise itself from the ground; it is, however, capable of greatly assisting itself by their motion in running, which it does very swiftly: the legs are stout, bare of feathers above the knees, and furnished with three toes, all placed forwards, each having a straight and stout claw as in the cassowary; on the heel is a callous knob, serving in place of a back toe: the general colour of plumage is dull grey mixed with white, inclining to the latter on the under parts: the tail is very short, and not conspicuous, being entirely covered with long loose and floating feathers, having origin from the lower part of the back and rump, and entirely covering it; the bill and legs are brown.

Molina observes that this bird varies; the body in some being white, in others black. In respect to manners, it is said to be a general feeder, but more fond of flies, which it catches with great dexterity, and will also, like the common ostrich, swallow bits of iron and any other trash offered to it. In common with the ostrich of the old world, it lays a number of eggs, from 40 to 60, in the sand, each of them holding a quart;

but

Rhe.
Rhea.

Rheedia
||
Rhetores.

but it differs from that bird in many particulars, especially in wanting the callosity on the sternum, and spars on the wing. With these last the common ostrich is known to defend itself: in defect of them; the one here treated of uses the feet with such address as to become at once a furious and dangerous antagonist. The female calls its young ones together with a kind of whistling note somewhat similar to that of a man: when young it is very tame, frequently following the first creature it meets with. The flesh of this bird is said to be very unpalatable. It is found in various parts of South America, from Patagonia to Guiana, and is known by the name of *Chique*. We are happy to be able to present our readers with an accurate drawing of the bird. See Plate CCCCXXXVII.

RHEEDIA, in botany: A genus of the monogynia order, belonging to the polyandria class of plants; and in the natural method ranking with those of which the order is doubtful. The corolla is tetrapetalous; there is no calyx; and the fruit is a trispermous berry.

RHEGIUM (anc. geog.), so very ancient a city as to be supposed to take its name from the violent bursting of the coast of Italy from Sicily; thought to have been formerly conjoined (Mela, Virgil). A city of the Bruttii, a colony of Chalcidians from Eubœa: a strong barrier opposed to Sicily (Strabo); mentioned by Luke; furnished *Julium* (Ptolemy), from a fresh supply of inhabitants sent thither by Augustus, after driving Sextus Pompeius out of Sicily (Strabo); and thus was in part a colony, retaining still the right of a municipium (Inscription). The city is now called *Reggio*, in the Farther Calabria.

RHEIMS, a city of France in Champagne, and capital of Rhemois. It is one of the most ancient, celebrated, and largest places in the kingdom, had an archbishop's see, whose archbishop was duke and peer of France. It is about four miles in circumference, and contains several fine squares, well-built houses, and magnificent churches. It had a mint, an university, and five abbies, the most famous of which was that of St Remy. There are also several triumphal arches and other monuments of the Romans. It is seated on the river Vesie, on a plain surrounded by hills, which produce excellent wine. E. Long. 4. 8. N. Lat. 49. 14.

RHENISH WINE, that produced on the hills about Rheims. This wine is much used in medicine as a solvent of iron, for which it is well calculated on account of its acidity. Dr Percival observes, that it is the best solvent of the Peruvian bark; in which, however, he thinks its acidity has no share, because an addition of vinegar to water does not augment its solvent power.

RHETORES, amongst the Athenians, were ten in number, elected by lot to plead public causes in the senate-house or assembly. For every cause in which they were retained, they received a drachm out of the public money. They were sometimes called *Συνγοροί*, and their fee *το Συνγορίον*. No man was admitted to this office before he was 40 years of age, though others say 30. Valour in war, piety to their parents, prudence in their affairs, frugality, and temperance, were necessary qualifications for this office, and every candidate underwent an examination concerning these virtues previous to the election. The orators at Rome

were not unlike the Athenian rhetores. See ORA. Rhetor. TOR.

RHETORIANS, a sect of heretics in Egypt, so denominated from Rhetorius their leader. The distinguishing tenets of this heresiarch, as represented by Philastrius, was, that he approved of all the heresies before him, and taught that they were all in the right.

RHETORIC, the art of speaking copiously on any subject, with all the advantages of beauty and force. See ORATORY.

RHEUM, a thin serous humor, occasionally oozing out of the glands about the mouth and throat.

RHEUM, *Rhubarb*: A genus of the monogynia order, belonging to the entandria class of plants; and in the natural method ranking under the 12th order, *Holoraceæ*. There is no calyx; the corolla is sexfid and persistent; and there is one triquetrous seed. There are five species, viz. 1. The rhapsoticum, or common rhubarb, hath a large, thick, fleshy, branching, deeply-friking root, yellowish within; crowned by very large, roundish, heart-shaped smooth leaves, on thick, slightly-furrowed foot-stalks: and an upright strong stem, two or three feet high, adorned with leaves singly, and terminated by thick close spikes of white flowers. It grows in Thrace and Scythia, but has been long in the English gardens. Its root affords a gentle purge. It is however of inferior quality to some of the following sorts; but the plant being astringent, its young stalks in spring, being cut and peeled, are used for tarts. 2. The palmatum, palmated-leaved true Chinese rhubarb, hath a thick fleshy root, yellow within; crowned with very large palmated leaves, being deeply divided into acuminate segments, expanded like an open hand; upright stems, five or six feet high or more, terminated by large spikes of flowers*. This is now proved to be the true foreign rhubarb, the purgative quality of which is well known. 3. The compactum, or Tartarian rhubarb, hath a large, fleshy, branched root, yellow within; crowned by very large, heart-shaped somewhat lobated, sharply indented, smooth leaves, and an upright large stem, five or six feet high, garnished with leaves singly, and branching above; having all the branches terminated by nodding panicles of white flowers. This has been supposed to be the true rhubarb; which, however, though of superior quality to some sorts, is accounted inferior to the rheum palmatum. 4. The undulatum, undulated, or waved-leaved Chinese rhubarb, hath a thick, branchy, deep-friking root, yellow within; crowned with large, oblong, undulate, somewhat hairy leaves, having equal foot-stalks, and an upright firm stem, four feet high; garnished with leaves singly, and terminated by long loose spikes of white flowers. 5. The Arabian ribes, or currant rhubarb of Mount Libanus, hath a thick fleshy root, very broad leaves, full of granulated protuberances, and with equal foot-stalks, and upright firm stems, three or four feet high, terminated by spikes of flowers, succeeded by berry-like feeds, being surrounded by a purple pulp. All these plants are perennial in root, and the leaves and stalks are annual. The roots being thick, fleshy, generally divided, strike deep into the ground; of a brownish colour without and yellow within: the leaves rise in the spring, generally come up in a large head folded together,

* See D.
tany, p. 4
and Pla
CVM.

together, gradually expanding themselves, having thick foot-stalks; and grow from one to two feet high, or more, in length and breadth; spreading all round: amidst them rise the flower-stems, which are garnished at each joint by one leaf, and are of strong and expeditious growth, attaining their full height in June, when they flower; and are succeeded by large triangular seeds, ripening in August. Some plants of each sort merit culture in gardens for variety; they will effect a singularity with their luxuriant foliage, spikes, and flowers: and as medical plants, they demand culture both for private and public use.

They are generally propagated by seeds sowed in autumn soon after they are ripe, or early in the spring, in any open bed of light deep earth; remarking, those intended for medical use should generally be sowed where they are to remain, that the roots, being not disturbed by removal, may grow large. Scatter the seeds thinly, either by broad-cast all over the surface, and raked well in; or in shallow drills a foot and half distance, covering them near an inch deep. The plants will rise in the spring, but not flower till the second or third year: when they, however, are come up two or three inches high, thin them to eight or ten inches, and clear out all weeds; though those designed always to stand should afterwards be hoed out to a foot and a half or two feet distance: observing, if any are required for the pleasure ground, &c. for variety, they should be transplanted where they are to remain in autumn, when their leaves decay, or early in spring, before they shoot: the others remaining where sowed, must have the ground kept clean between them; and in autumn, when the leaves and stalks decay, cut them down, and slightly dig the ground between the rows of plants, repeating the same work every year. The roots remaining, they increase in size annually: and in the second or third year many of them will shoot up stalks, flower, and perfect seeds; and in three or four years the roots will be arrived to a large size; though older roots are generally preferable for medical use.

In Mr Bell's Travels we have an account of some curious particulars relating to the culture of rhubarb. He tells us, that the best rhubarb grows in that part of Eastern Tartary called *Mongalia*, which now serves as a boundary between Russia and China. The marmots contribute greatly to the culture of the rhubarb. Wherever you see 10 or 20 plants growing, you are sure of finding several burrows under the shades of their broad-spreading leaves. Perhaps they may sometimes eat the leaves and roots of this plant; however, it is probable the manure they leave about the roots contributes not a little to its increase; and their casting up the earth, makes it shoot out young buds and multiply. This plant does not run, and spread itself, like docks and others of the same species; but grows in tufts, at uncertain distances, as if the seeds had been dropped with design. It appears that the Mongals never accounted it worth cultivating; but that the world is obliged to the marmots for the quantities scattered, at random, in many parts of this country: for whatever part of the ripe seed happens to be blown among the thick grass, can very seldom reach the ground, but must there wither and die; whereas, should it fall among the loose earth thrown up by

the marmots, it immediately takes root, and produces a new plant.

After digging and gathering the rhubarb, the Mongals cut the large roots into small pieces, in order to make them dry more readily. In the middle of every piece they scoop a hole, through which a cord is drawn, in order to suspend them in any convenient place. They hang them for the most part about their tents, and sometimes on the horns of their sheep. This is a most pernicious custom, as it destroys some of the best part of the root: for all about the hole is rotten and useless; whereas, were people rightly informed how to dig and dry this plant, there would not be one pound of refuse in an hundred; which would save a great deal of trouble and expence, that much diminish the profits on this commodity. At present, the dealers in this article think these improvements not worthy of their attention, as their gains are more considerable on this than on any other branch of trade. Perhaps the government may hereafter think it proper to make some regulations with regard to this matter.

Two sorts of rhubarb are met with in the shops. The first is imported from Turkey and Russia, in roundish pieces freed from the bark, with a hole through the middle of each: they are externally of a yellowish colour, and on cutting appear variegated with lively reddish streaks. The other, which is less esteemed, comes immediately from the East Indies, in longish pieces, harder, heavier, and more compact than the foregoing. The first sort, unless kept very dry, is apt to grow mouldy and worm-eaten; the second is less subject to these inconveniences. Some of the more industrious artists are said to fill up the worm-holes with certain mixtures, and to colour the outside of the damaged pieces with powder of the finer sorts of rhubarb, and sometimes with cheaper materials: this is often so nicely done, as effectually to impose upon the buyer, unless he very carefully examines each piece. The marks of good rhubarb are, that it be firm and solid, but not flinty; that it be easily pulverable, and appear, when powdered, of a fine bright yellow colour; that, upon being chewed, it impart to the spittle a saffron tinge, without proving slimy or mucilaginous in the mouth. Its taste is subacid, bitterish, and somewhat astringent; the smell lightly aromatic.

Rhubarb is a mild cathartic, which operates without violence or irritation, and may be given with safety even to pregnant women and children. Besides its purgative quality, it is celebrated for an astringent one, by which it strengthens the tone of the stomach and intestines, and proves useful in diarrhoeas and disorders proceeding from a laxity of the fibres. Rhubarb in substance operates more powerfully as a cathartic than any of the preparations of it. Watery tinctures purge more than the spirituous ones; whilst the latter contain in greater perfection the aromatic, astringent, and corroborating virtues of the rhubarb. The dose, when intended as a purgative, is from a scruple to a dram or more.

The Turkey rhubarb is, among us, universally preferred to the East India sort, though this last is for some purposes at least equal to the other; it is manifestly more astringent, but has somewhat less of an aromatic flavour. Tinctures drawn from both with rectified spirit have nearly the same taste: on distilling

Rheum.

Rheum

off the menstruum, the extract left from the tincture of the East India rhubarb proved considerably the strongest.

Rhubarb has been cultivated of late in this country with considerable success, and for medical purposes is found to equal that of foreign growth, as is proved by the Transactions of the London Society for encouraging Arts, Manufactures, and Commerce, who have rewarded several persons both for cultivating and curing it. In the Transactions for 1792, the gold medal was adjudged to Sir William Fordyce, for raising from seed in the year 1791 upwards of 300 plants of the true rhubarb, or rheum palmatum of the London Pharmacopœia 1788, which in the second and third weeks of October were transplanted into a deep loam, at four feet distance from each other, according to rules laid down by the society. In 1793 it was adjudged to Mr Thomas Jones, from whose papers we derive the following information.

After giving an accurate account of his experiments and observations, he concludes, that the season for sowing is the spring about March or April, or in autumn about August and September; that those plants which are raised in the spring should be transplanted in autumn, and *vice versa*; that they cannot have too much room; that room and time are essentially necessary to their being large, of a good appearance, and perhaps to the increase of their purgative qualities; that to effect these purposes, the soil must be light, loamy, and rich, but not too much so, lest the roots should be too fibrous; that their situation can scarcely be too dry, as more evils are to be expected from a superabundance of moisture than any actual want of it: and lastly, we may conclude, that in particular the injuries which they are subject to are principally during their infancy, and to be imputed to insects and inattention to the planting season; afterwards, from too great an exposure to frost: but that none can be dreaded from heat; and that in general they are hardy and easy of cultivation, when arrived beyond a certain term.

The method of curing rhubarb, as proposed by Dr Tirruogel of Stockholm, is as follows: "No roots should be taken up till they have been planted ten years: they should be taken out of the ground either in winter, before the frost sets in, or in the beginning of spring, and immediately cut into pieces, and carefully barked; let them be spread upon a table for three or four days, and be frequently turned, that the juices may thicken or condense within the roots. After this process, make a hole in each piece, and put a thread through it; by which let them hang separately, either within doors, or in some sheltered shady shed. Some persons dry them in a different way: they inclose the roots in clay, and make a hole in the clay, about the thickness of a goose-quill, and in this manner hang up each piece to dry separately, that the moisture may not evaporate, nor the strength of the root be weakened. But the methods which the Tartars follow is a bad one: they dig the roots out of the deserts where they grow, bark them, and immediately string them, and hang them round the necks of their camels, that they may dry as they travel; but this greatly lessens the medicinal virtue of the root."

Mr Thomas Halley of Pontefract in Yorkshire, to whom the London Society voted the silver medal in

1793, informs us, that his father tried various experiments for curing rhubarb, as washing, brushing, barking, and peeling, and he dried them in the sun, on a kiln, in a stove, or in a warm kitchen. But of the success of all or either of these methods we have no account, owing to the death of Mr Halley's father. He sent, however, to them five different specimens, which the Society acknowledges to be superior to any rhubarb hitherto cured in England, and produced to them. The roots sent, Mr Halley says, were planted about the year 1781 in a light sandyish soil, but were much neglected. They were taken up in the spring of 1792, and being thoroughly divested of the adhering earth, were placed for some weeks on the floor of a cool warehouse: the fibres were then taken off, cut up, and dried on the flue of a green-house; but, from mismanagement, were entirely spoiled. The prime roots were severed in small pieces, peeled clean, and thoroughly cleared of every particle of unsoundness. Part was separately laid in sieves, and the remainder perforated, strung, and suspended in festoons from the ceiling of a warm kitchen. The manner of dressing consists in paring off the external coat with a sharp knife, as thin and clean as possible, and then finishing it off by a piece of fish-skin, with its own powder; which powder may be procured from the chips and small pieces, either by grinding or pounding it in a large mortar.

In the year 1794 the Society adjudged the gold medal to Mr William Hayward of Hanbury, Oxfordshire, for propagating rhubarb by offsets taken from the crowns of large plants, instead of seeds, for the purpose of bringing it to perfection in a shorter time, which fully answered his expectations. Mr Hayward was a candidate in the year 1789 for the gold medal; but having misunderstood their rules, he was not entitled to it, though with great propriety they voted to him the silver medal; in consequence of which he sent them his method of culture and cure. His method of cultivating Turkey rhubarb from seed is thus explained to the Society: "I have usually sown the seed about the beginning of February, on a bed of good soil (if rather sandy the better), exposed to an east or west aspect, in preference to the south; observing a full sun to be prejudicial to the vegetation of the seeds, and to the plants whilst young. The seeds are best sown moderately thick (broad-cast), treading them regularly in, as is usual with parsneps and other light seeds, and then raking the ground smooth. I have sometimes, when the season has been wet, made a bed for sowing the rhubarb seeds upon, about two feet thick, with new dung from the stable, covering it near one foot thick with good soil. The intent of this bed is not for the sake of warmth, but solely to prevent the rising of earthworms, which, in a moist season, will frequently destroy the young crop. If the seed is good, the plants often rise too thick; if so, when they have attained six leaves they should be taken carefully up (where too close), leaving the standing crop eight or ten inches apart: those taken up may be planted at the same distance, in a fresh spot of ground, in order to furnish other plantations. When the plants in general are grown to the size that cabbage-plants are usually set out for a standing crop, they are best planted where they are to remain, in beds four feet wide, one row along the middle of the bed, leaving two yards distance betwixt the plants,

plants, allowing an alley between the beds about a foot wide, for convenience of weeding the plants. In the autumn, when the decayed leaves are removed, if the shoveling of the alleys are thrown over the crowns of the plants, it will be found of service.

His mode of cultivating the same plant by offsets is thus given: "On taking up some plants the last spring, I slipped off several offsets from the heads of large plants: these I set with a dibble about a foot apart, in order, if I found them thrive, to remove them into other beds. On examining them in the autumn, I was surprised to see the progress they had made, and pleased to be able to furnish my beds with 40 plants in the most thriving state. Though this was my first experiment of its kind, I do not mean to arrogate the discovery to myself, having known it recently tried by others, but without being informed of their success. I have reason to think this valuable drug will, by this method, be brought much sooner to perfection than from seed."

His method of curing rhubarb is thus described: "The plants may be taken up either early in the spring, or in autumn, when the leaves are decayed, in dry weather if possible, when the roots are to be cleared from dirt (without washing): let them be cut into pieces, and with a sharp knife freed from the outer coat, and exposed to the sun and air for a few days, to render the outside a little dry. In order to accelerate the curing of the largest pieces, a hole may be scooped out with a penknife: these and the smaller parts are then to be strung on packthread, and hung up in a warm room (I have always had the convenience of such a one over a baker's oven), where it is to remain till perfectly dry. Each piece may be rendered more tightly by a common file, fixing it in a small vice during that operation: afterwards rub over it a very fine powder, which the small roots furnish in beautiful perfection, for this and every other purpose where rhubarb is required."

In the year 1794, too, the Society adjudged the gold medal to Mr Ball for his method of curing the true rhubarb, which is as follows: "I take the roots up when I find the stalks withering or dying away, clean them from the earth with a dry brush, cut them in small pieces of about four or five inches in breadth, and about two in depth, taking away all the bark, and make a hole in the middle, and string them on packthread, keeping every piece apart; and every morning, if the weather is clear and fine, I place them in the open part of the garden, on stages, erected by fixing small posts about six feet high in the ground, and six feet asunder, into which I fix horizontal pegs, about a foot apart, beginning at the top; and the rhubarb being stringed crosswise on small poles, I place them on these pegs; so that if it should rain, I could easily remove each pole with the suspended pieces, into any covered place. I never suffer them to be out at night, as the damps at this season would be apt to mould them; and if at any time I perceive the least mark of mould, I rub it off with a dry cloth. In some of the pieces of rhubarb which I have cured this year, I have made holes about half an inch diameter in the middle, for the free passage of air, and

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have found that every one of these pieces dried better than the others where no such holes were made; and have likewise hung several strings in the kitchen, and never exposed them in the open air, and found them to dry exceedingly well, and much better than those in the open air. Some years since I dried a quantity of rhubarb on a malt-kiln, keeping up the thermometer to 80 degrees, which answered well, but I think rather dried too quick: the roots which I have cured this year are a part of the plantation of 1789, and for which the Society was so kind as to give me a medal (A)."

RHEXIA, in botany: A genus of the monogynia order, belonging to the octandria class of plants; and in the natural method ranking with those of the 17th order, *Calycanthemæ*. The calyx is quadrifid, with four petals inserted into it; the antheræ are declining; the capsule is quadrilocular, within the belly of the calyx.

RHINANTHUS, in botany: A genus of the angiospermia order, belonging to the didynamia class of plants; and in the natural method ranking under the 40th order, *Personatæ*. The calyx is quadrifid, and ventricose; the capsule bilocular, obtuse, and compressed.

RHINE, a large river of Germany, famous both in ancient and modern history. It rises among the Alpes Lepontiæ, or Grisons; and first traversing the Lacus Acronius, divides the Rhæti and Vindelici from the Helvetii, and then the Germans from the Gauls and Belgæ; and running from south to north for the greatest part of its way, and at length bending its course west, it empties itself at several mouths (Cæsar); at three mouths into the German ocean, (Pliny); viz. the western, or Helius; the northern, or Fleuvus; and the middle between both these, which retains the original name, *Rhenus*: and in this Ptolemy agrees.—Mela and Tacitus mention two channels, and as many mouths, the right and left; the former running by Germany, and the latter by Gallia Belgica: and thus also Asinius Pollio, and Virgil; the cut or trench of Drusus not being made in their time, whereby the middle channel was much drained and reduced, and therefore overlooked by Tacitus and Mela; and which Pliny calls the *Scanty*. To account for Cæsar's several mouths, is a matter of no small difficulty with the commentators; and they do it no otherwise than by admitting that the Rhine naturally formed small drains or rivulets from itself; the cut of Drusus being long posterior to him; in whose time Asinius Pollio, quoted by Strabo, who agrees with him therein, affirmed that there were but two mouths, finding fault with those who made them more: and he must mean the larger mouths, which emitted larger streams. The Romans, especially the poets, used the term *Rhenus* for Germany, (Martial).—At present, the river, after entering the Netherlands at Schenkinhaus, is divided into several channels, the two largest of which obtain the names of the *Lech* and the *Waal*, which running thro' the United Provinces, falls into the German ocean below Rotterdam.

Rhexia

Rhine.

D d

Lower

(A) The Society also adjudged to Mr Ball the medal in 1790, for cultivating rhubarb.

Rhine
||
Rhinegau.

Lower Circle of the RHINE, consists of the palatinate of the Rhine, and the three ecclesiastical electorates, viz. those of Cologne, Mentz, and Triers.

Upper Circle of the RHINE, consisted of the landgraviates of Alsace and Hesse, comprehending the Weteraw; but now only Hesse can be accounted a part of Germany, Alsace being long ago united to France.

RHINEBERG, a town of Germany, in the circle of the Lower Rhine, and diocese of Cologne. It was in the possession of the French, but restored to the archbishop of Cologne by the treaty of Utrecht. It is seated on the Rhine, in E. Long. 6° 39'. N. Lat. 51° 30'.

RHINECK, a town of Germany, in the archbishopric of Cologne, seated on the Rhine, E. Long. 7° 53'. N. Lat. 50° 27'.—There is another town of the same name in Swisserland, capital of Rhinthal, seated on the Rhine, near the lake of Constance, with a good castle. E. Long. 9° 53'. N. Lat. 47° 38'.

RHINFELD, a small but strong town of Germany, in the circle of Suabia, and the best of the four forest-towns belonging to the house of Austria. It has been often taken and retaken in the German wars; and is seated on the Rhine, over which there is a handsome bridge. E. Long. 7° 53'. N. Lat. 47° 40'.

RHINEGAU, a beautiful district of the electorate of Mentz, is situated on the Rhine, about three miles from the city of Mentz, and is so populous that it looks like one entire town intermixed with gardens and vineyards. The Rhine here grows astonishingly wide, and forms a kind of sea, near a mile broad, in which are several well wooded little islands. The Rhinegau forms an amphitheatre, the beauties of which are beyond all description. At Walluf, the very high hills come nearly down to the river side; from thence they recede again into the country, forming a kind of half circle, the other end of which is 15 miles off at Rudesheim, on the banks of the Rhine. The banks of the river, the hills which form the circles, and the slopes of the great mountains, are thick sown with villages and hamlets. The white appearance of the buildings, and the fine blue slated roofs of the houses playing amidst the various green of the landscape, have an admirable effect. In the space of every mile, as you sail down the river, you meet with a village which in any other place would pass for a town. Many of the villages contain from 300 to 400 families; and there are 36 of them in a space of 15 miles long and six miles broad, which is the width of this beautiful amphitheatre. The declivities of all the hills and mountains are planted thick with vineyards and fruit trees, and the thick wooded tops of the hills cast a gloomy horror over the otherwise cheerful landscape. Every now and then a row of rugged hills run directly down to the shore, and domineer majestically over the lesser hills under them. On one of these great mountains, just about the middle of the Rhinegau, you meet with *Johannis-Berg*, a village which produces some of the best Rhenish. Before this village is a pretty little rising, and near the banks of the river there is a very fine old castle, which gives unspeakable majesty to the whole landscape. Indeed, in every village, you meet with some or other large building, which contributes very much to the decoration of the whole. This country is indebted for its

riches to this semicircular hill, which protects it from the cold winds of the east and north, at the same time that it leaves room enough for the sun to exercise his benign influences. The groves and higher slopes of the hills make excellent pastures, and produce large quantities of dung, which, in a country of this sort, is of inestimable value.

The bank of the Rhine, opposite to the Rhinegau, is exceedingly barren, and heightens the beauty of the prospect on the other side by the contrast it exhibits; on this side, you hardly meet above three or four villages, and these are far distant from each other. The great interval between them is occupied by heaths and meadows, only here and there a thick bush affords some shade, and a few corn fields among the villages enliven the gloomy landscape. The back ground of this country is the most picturesque part of it. It is formed by a narrow gullet of mountains, which diminish in perspective between Rudesheim and Bingen. Perpendicular mountains and rocks hang over the Rhine in this place, and seem to make it the dominion of eternal night. At a distance, the Rhine seems to come out of this landscape through a hole under ground; and it appears to run tediously, in order to enjoy its course through a pleasant country the longer. Amidst the darkness which covers this back ground, the celebrated Mouse tower seems to swim upon the river. In a word, there is not any thing in this whole tract that does not contribute something to the beauty and magnificence of the whole; or, if I may be permitted the expression, to make the paradise more welcome. As you sail along the Rhine, between Mentz and Bingen, the banks of the river form an oval amphitheatre, which makes one of the richest and most picturesque landscapes to be seen in Europe. The inhabitants of these regions are some of them extremely rich, and some extremely poor. The happy middle state is not for countries the chief product of which is wine; for, besides that the cultivation of the vineyard is infinitely more troublesome and expensive than agriculture, it is subjected to revolutions, which in an instant reduce the holder of land to the condition of a day-labourer. It is a great misfortune for this country, that, though restrained by law, the nobility are, through connivance of the Elector, allowed to purchase as much land as they please. The peasant generally begins by running in debt for his vineyard; so that if it does not turn out well, he is reduced to day-labour, and the rich man extends his possessions to the great detriment of the country. There are several peasants here, who having incomes of 30, 50, or 100,000 guilders a-year, have laid aside the peasant, and assumed the wine-merchant; but, splendid as their situation is, it does not compensate, in the eyes of the humane man, for the sight of so many poor people with which the villages swarm. In order to render a country of this kind prosperous, the state should appropriate a fund to the purpose of maintaining the peasant in bad years, and giving him the assistance which his necessities, and his want of ready money, may from time to time make convenient.

The inhabitants of the Rhinegau are a handsome and uncommonly strong race of men. You see at the very first aspect that their wine gives them merry hearts and sound bodies. They have a great deal of natural wit, and a vivacity and jocoseness, which distinguishes them

Riesbach's
Travels
through
Germany,
iii. 226.

very much from their neighbours. You need only compare them with some of these, to be convinced that the drinker of wine excels the drinker of beer and water, both in body and mind, and that the inhabitant of the south is much flouter than he who lives in the north; for though the wine drinker may not have quite as much flesh as he who drinks only beer, he has better blood, and can bear much more work. Tacitus had already observed this, in his treatise *De moribus Germanorum*. "The large and corpulent bodies of the Germans (says he) have a great appearance, but are not made to last." At that time almost all the Germans drank only water; but the mere drinking of wine has effected a revolution in several parts of Germany, which makes the present inhabitants of these countries very different from those described by Tacitus. Black and brown hair is much commoner here than the white, which made the Germans so famous in old Rome. "It will be easily imagined (says Baron Reisbeck), that the monks fare particularly well in so rich a country. We made a visit to the prelate of Erbach. These lordly monks, for so in every respect they are, have an excellent hunt, rooms magnificently furnished, billiard tables, half a dozen beautiful singing women, and a stupendous wine cellar, the well ranged batteries of which made me shudder. A monk, who saw my astonishment at the number of the casks, assured me, that, without the benign influence which flowed from them, it would be totally impossible for the cloister to subsist in so damp a situation."

RHINFELS, a castle of Germany, in the circle of the Lower Rhine, in a county of the same name. It is looked upon as one of the most important places seated on the Rhine, as well in regard to its strength as situation. It is near St Goar, and built on a craggy rock. This fortress commands the whole breadth of the Rhine, and those who pass are always obliged to pay a considerable toll. In the time of war it is of great importance to be masters of this place. E. Long. 7. 43. N. Lat. 50. 3.

RHINLAND, a name given to a part of South Holland, which lies on both sides the Rhine, and of which Leyden is the capital town.

RHINOCEROS, in zoology, a genus of quadrupeds belonging to the order of belluæ. The name is entirely Greek; but these animals were totally unknown to the ancient Greeks. Aristotle takes no notice of them, nor any other Greek writer till Strabo, nor Roman till Pliny. It is probable they did not frequent that part of India into which Alexander had penetrated, since it was near 300 years after that Pompey brought them to Europe. From this time till the days of Heliogabalus, the rhinoceros was frequently exhibited in the Roman spectacles; and he has often been transported into Europe in more modern times; but they were long very ill represented, and very imperfectly described, till some that arrived in London in 1739 and 1741 were inspected, by which the errors and caprices of former writers were detected.

There are two species of rhinoceros, the first of which is the *unicornis*, the length of which, Buffon

tells us, from the extremity of the muzzle to the origin of the tail, is at least 12 feet, and the circumference of the body is nearly the same. "The rhinoceros which came to London in the year 1739 was sent from Bengal. Though not above two years of age, the expence of his food and journey amounted to near L. 1000 Sterling. He was fed with rice, sugar, and hay. He had daily seven pounds of rice, mixed with three pounds of sugar, and divided into three portions. He had likewise hay and green herbs, which last he preferred to hay. His drink was water, of which he took large quantities at a time (A). He was of a peaceable disposition, and allowed all parts of his body to be touched. When hungry, or struck by any person, he became mischievous, and in both cases nothing appeased him but food. When enraged, he sprung forward, and nimbly raised himself to a great height, pushing at the same time his head furiously against the walls, which he performed with amazing quickness, notwithstanding his heavy aspect and unwieldy mass. I often observed, says Dr Parsons, these movements produced by rage or impatience, especially in the mornings before his rice and sugar were brought to him. The vivacity and promptitude of his movements, Dr Parsons adds, led me to think, that he is altogether unconquerable, and that he could easily overtake any man who should offend him.

"This rhinoceros, at the age of two years, was not taller than a young cow that has never produced. But his body was very long and very thick. His head was disproportionally large. From the ears to the horn there is a concavity, the two extremities of which, namely the upper end of the muzzle, and the part near the ears, are considerably raised. The horn, which was not yet above an inch high, was black, smooth at the top, but full of wrinkles directed backward at the base. The nostrils are situated very low, being not above an inch distant from the opening of the mouth. The under lip is pretty similar to that of the ox; but the upper lip has a greater resemblance to that of the horse, with this advantageous difference, that the rhinoceros can lengthen this lip, move it from side to side, roll it about a staff, and seize with it any object he wishes to carry to his mouth. The tongue of this young rhinoceros was soft, like that of a calf. His eyes had no vivacity: In figure they resembled those of the hog, and were situated lower, or nearer the nostrils, than in any other quadruped. His ears are large, thin at the extremities, and contracted at their origin by a kind of annular rugosity. The neck is very short, and surrounded with two large folds of skin. The shoulders are very thick, and at their juncture there is another fold of skin, which descends upon the fore legs. The body of this young rhinoceros was very thick, and pretty much resembled that of a cow about to bring forth. Between the body and crupper there is another fold, which descends upon the hind legs. Lastly, another fold transversely surrounds the inferior part of the crupper, at some distance from the tail. The belly was large, and hung near the ground, particularly its middle part. The legs are round, thick, strong, and

D d 2

Rhinoceros.
Plate
CCCCXXXVIII
Buffon's
Natural
History,
vol. vi. p.
92, &c.

(A) "Their food in a state of nature is the grossest herbs, as thistles and thorny shrubs, which they prefer to the soft pasture of the best meadows; they are fond of the sugar cane, and eat all kinds of grain, but for flesh they have no appetite."

Rhinoceros. their joint bended backwards. This joint, which, when the animal lies, is covered with a remarkable fold of the skin, appears when he stands. The tail is thin, and proportionally short; that of the rhinoceros so often mentioned, exceeded not 16 or 17 inches in length. It turns a little thicker at the extremity, which is garnished with some short, thick, hard hairs. The form of the penis is very extraordinary. It is contained in a prepuce or sheath like that of the horse; and the first thing that appears in the time of erection is a second prepuce, of a flesh-colour, from which there issues a hollow tube, in the form of a funnel cut and bordered somewhat like a flower-de-luce, and constitutes the glans and extremity of the penis. This anomalous glans is of a paler flesh-colour than the second prepuce. In the most vigorous erection, the penis extends not above eight inches out of the body; and it is easily procured by rubbing the animal with a handful of straw when he lies at his ease. The direction of this organ is not straight, but bended backward. Hence he throws out his urine behind; and from this circumstance, it may be inferred that the male covers not the female, but that they unite with their cruppers to each other. The female organs are situated like those of the cow; and she exactly resembles the male in figure and grossness of body. The skin is so thick and impenetrable, that when a man lays hold of any of the folds, he would imagine he is touching a wooden plank of half an inch thick (B). When tanned, Dr Grew remarks, it is excessively hard, and thicker than the hide of any other terrestrial animal. It is everywhere covered more or less with eruptions in the form of galls or tuberosities, which are pretty small on the top of the neck and back, but become larger on the sides. The largest are on the shoulders and crupper, are still pretty large on the thighs and legs, upon which they are spread all round, and even on the feet. But between the folds the skin is penetrable, delicate, and as soft to the touch as silk, while the external part of the fold is equally hard with the rest. This tender skin between the folds is of a light flesh-colour; and the skin of the belly is nearly of the same colour and consistence. These galls or tuberosities should not be compared, as some authors have done, to scales. They are only simple indurations of the skin, without any regularity in their figure or symmetry in their respective positions. The flexibility of the skin in the folds enables the rhinoceros to move with facility his head, neck, and members. The whole body, except at the joints, is inflexible, and resembles a coat of mail. Dr Parsons remarks, that this animal listened with a deep and long continued attention to any kind of noise; and that, though he was sleeping, eating, or obeying any other pressing demands of nature, he raised his head, and listened till the noise ceased."

These animals never assemble or march together in troops like elephants. Being of a more solitary and savage disposition, they are more difficult to hunt and to overcome. They never attack men, however, except when they are provoked, when they are very furious and formidable; but as they see only before them, and

not very sharply, and as they turn with great difficulty, Rhinoceros they may be easily avoided. The skin of these animals is so extremely hard as to resist sabres, lances, javelins, and even musket balls, the only penetrable parts being the belly, the eyes, and about the ears. Hence the hunters generally attack them when they lie down to sleep.— Their flesh is considered as excellent by the Indians and Africans, but especially by the Hottentots; and if they were trained when young, they might be rendered domestic, in which case they would multiply more easily than the elephant. They inhabit Bengal, Siam, Colchin-China, Quangsi in China, the isles of Java and Sumatra, Congo, Angola, Ethiopia, and the country as low as the Cape. They love shady forests, the neighbourhood of rivers, and marshy places. They wallow in the mire like hogs, and are said by that means to give shelter in the folds of their skins to scorpions, centipedes, and other insects. This is denied by Buffon and Edwards, though the surgeon of the Shaftesbury had observed in a rhinoceros, newly taken after having weltered in the mud, several insects concealed under the ply of the skin. This carries with it every appearance of probability; for as the creature welters in mud, it is impossible for it to do so without bringing up with it some of the insects which live in that mud; and when this is the case, it surely cannot be unnatural to suppose that they would shelter themselves under the plaits of the skin. Mr Bruce had an opportunity of examining the skin of a rhinoceros before his muddy covering had been scraped off, and saw under it several very large worms, but not of the carnivorous kind. He saw likewise several smaller animals resembling ear-wigs, which he took to be young scolopendræ; and, though he searched no farther, we must certainly consider this as a proof of what the surgeon of the Shaftesbury related. Mr Bruce supposes, too, that they welter in mire, partly in order to screen themselves by a case of mud from the attacks of that mischievous fly which infests the animals of Abyssinia to such a degree. "The time of the fly (says he) being in the rainy season, the whole black earth turns into mire. In the night, when the fly is at rest, the rhinoceros chooses a convenient place, and there, rolling himself in the mud, he clothes himself with a kind of case, which defends him against his enemy the following day. The wrinkles and plaits of his skin serve to keep this muddy plaster firm upon him, all but about his hips, shoulders, and legs, where it cracks and falls off by motion, and leaves him exposed in those places to the attacks of the fly. The itching and pain which follow occasion him to rub himself in those parts against the roughest trees; and this is at least one cause of the pustules or tubercles which we see upon these places, both on the elephant and rhinoceros." They bring forth only one young at a time, about which they are very solicitous. They are said to consort with tigers; a story founded merely on their common attachment to the sides of rivers, by which means they are often found near each other. Their skin, flesh, hoofs, teeth, and even dung, are used in India medicinally. The horn, especially that of a virgin rhinoceros, is considered as an antidote against poison. Every horn,

(B) This Mr Bruce denies to be the case, and suspects, where it does occur, that it is the effect of disease, or of a different habit acquired by keeping. In their natural state, he thinks they prevent this rigidity by wallowing in the mud.

rhinoceros horn, however, has not this property; some of them selling very cheap, while others are extremely dear.

Some writers are of opinion, that the rhinoceros is the unicorn of holy writ and of the ancients, and that the oryx or Indian ass of Aristotle, who says it has but one horn, was the same, his informers comparing the clumsy shape of the rhinoceros to that of the ass.—It was also the *bos unicornis* and *fera monoceros* of Pliny, both of which were of India; and in his account of the monoceros he exactly describes the great black horn and hog-like tail. The unicorn of Scripture is considered as having all the properties of the rhinoceros, as rage, untameableness, great swiftness, and vast strength. This opinion is most ably supported by Mr Bruce. “The derivation of the Hebrew word *reem* (says he), which in our version is translated *unicorn*, both in the Hebrew and the Ethiopic, seems to be from erectness, or standing straight. This is certainly no particular quality in the animal itself, who is not more or even so much erect as many other quadrupeds, for in its knees it is rather crooked; but it is from the circumstance and manner in which its horn is placed. The horns of all other animals are inclined to some degree of parallelism with his nose or os frontis. The horn of the rhinoceros is erect and perpendicular to this bone, on which it stands at right angles, thereby possessing a greater purchase or power, as a lever, than an horn could possibly have in any other position. The situation of the horn is very happily alluded to in Scripture; ‘My horn shalt thou exalt like the horn of an unicorn.’ And the horn here alluded to is not wholly figurative, but was really an ornament worn by great men in the days of victory, preferment, or rejoicing, when they were anointed with new, sweet, or fresh oil; a circumstance which David joins with that of erecting the horn.

“Some authors, for what reason I know not, have made the reem, or unicorn, to be of the deer or antelope kind; that is, of a genus whose very character is fear and weakness, directly opposite to the qualities by which the reem is described in Scripture: besides, it is plain that the reem is not of the class of clean quadrupeds; and a late modern traveller very whimsically takes him for the leviathan, which certainly was a fish. Balaam, a priest of Midian, and so in the neighbourhood of the haunts of the rhinoceros, and intimately connected with Ethiopia, (for they themselves were shepherds of that country), in a transport, from contemplating the strength of Israel, whom he was brought to curse, says, they had, as it were, the strength of the reem. Job makes frequent allusion to his great strength, ferocity, and indocility. He asks, ‘Will the reem be willing to serve thee, or abide by thy crib?’ that is, Will he willingly come into thy stable, and eat at thy manger? And again, ‘Canst thou bind the reem with a band in the furrow; and will he harrow the valleys for thee?’—In other words, Canst thou make him go to the plough or harrows?

“The rhinoceros, in Geez, is called *Arwe Harich*, and in the Amharic *Auraris*; both which names signify ‘the large wild beast with the horn.’ This would seem as if applied to the species with one horn. On the other hand, in the country of the Shangalla and in Nubia he

is called *Girnamgirn*, or ‘horn upon horn;’ and this would seem to denote that he had two. The Ethiopic text renders the word *reem*, ‘Arwe-Harich;’ and this the Septuagint translates *monoceros*, or *unicorn*. The principal reason of translating the word *unicorn* rather than *rhinoceros*, is from a prejudice that he must have had but one horn. But this is by no means so well founded as to be admitted the only argument for establishing the existence of an animal, which never has appeared after the search of so many ages. Scripture speaks of the horns of the unicorn; so that even from this circumstance the reem may be the rhinoceros, as the Asiatic, and part of the African rhinoceros, may be the unicorn.”

The rhinoceros bicornis was long known in Europe merely by the double horns which were preserved in various cabinets; and its existence, though now past all doubt, has been frequently questioned. Dr Sparman, in his voyage to the Cape of Good Hope, killed two of these animals, which he dissected, and very minutely describes. The horns, he says, in the live animal are so mobile and loose, that when it walks carelessly along, one may see them waggle about, and hear them clash and clatter against each other. In the Phil. Trans. for 1793, we have a description of the double-horned rhinoceros of Sumatra, by Mr Bell, surgeon in the service of the East India Company at Bencoolen; and this account, though it differs considerably from that of Sparman in some particulars, we shall insert here. “The animal (says Mr Bell) herein described was shot with a leaden ball from a musket about ten miles from Fort Marlborough. I saw it the day after; it was then not in the least putrid, and I put it into the position from which the accompanying drawing was made. (See Plate ccccxviii.) It was a male; the height at the shoulder was 4 feet 4 inches; at the sacrum nearly the same; from the tip of the nose to the end of the tail eight feet five inches.—From the appearance of its teeth and bones it was but young, and probably not near its full size. The shape of the animal was much like that of the hog. The general colour was a brownish ash; under the belly, between the legs and folds of the skin, a dirty flesh colour. The head much resembled that of the single horned rhinoceros; the eyes were small, of a brown colour; the *membrana nictitans* thick and strong; the skin surrounding the eyes was wrinkled; the nostrils were wide; the upper lip was pointed, and hanging over the under.

“There were six *molars*, or grinders, on each side of the upper and lower jaw, becoming gradually larger backward, particularly in the upper; two teeth in the front of each jaw; the tongue was quite smooth; the ears were small and pointed, lined and edged with short black hair, and situated like those of the single-horned rhinoceros. The horns were black, the larger was placed immediately above the nose, pointing upwards, and was bent a little back; it was about nine inches long. The small horn was four inches long, of a pyramidal shape, flattened a little, and placed above the eyes, rather a little more forward, standing in a line with the larger horn, immediately above it. They were both firmly attached to the skull, nor was there any appearance of joint or muscles to move them (c). The neck was thick and short, the skin on the under side thrown in

to

(c) Mr Bruce, however, says, that in the living animal the horns are extremely sensible. He informs us, that

Rhinoceros. to folds, and these folds again wrinkled. The body was bulky and round, and from the shoulder ran a line, or fold, as in the single-horned rhinoceros, though it was but faintly marked. There were several other folds and wrinkles on the body and legs; and the whole gave rather the appearance of softness: the legs were thick, short, and remarkably strong; the feet armed with three distinct hoofs, of a blackish colour, which surrounded half the foot, one in front, the others on each side. — The soles of the feet were convex, of a light colour, and the cuticle on them not thicker than that on the foot of a man who is used to walking; the testicles hardly appeared externally; the penis was bent backward, and opened about 18 inches below the anus. At its origin it was as thick as a man's leg, and about two feet and a half long; the bend in it occasions the urine to be discharged backwards. The glans is very singular; the opening of the urethra is like the mouth of a cup with its brim bending over a little and is about three quarters of an inch in diameter; the glans here is about half an inch in diameter, and continues that thickness for an inch and a half: it is then inserted into another cup like the first, but three times as large; the glans afterwards gradually becomes thicker, and at about nine inches from the opening of the urethra are placed two bodies on the upper part of the glans, very like the nipples of a milch-cow, and as large; these become turgid when the penis is erected; the whole of this is contained in the prepuce, and may be considered as glans. From the os pubis arises a strong muscle, which soon becomes tendinous; this tendon is continued along the back or upper part of the penis; it is flattened, is about the size of a man's little finger, and is inserted into the upper part of the glans, near the end. The use of this muscle is to straiten the penis. On the under side of the penis there are two muscles, antagonists to the above; they arise from the os ischium fleshy, run along the lower side of the penis, on each side of the corpus spongiosum, and are inserted fleshy into the lower side of the glans; the action of these muscles will draw in the penis, and bend it. The male has two nipples, like the female, situated between the hind legs; they are about half an inch in length, of a pyramidal form, rounded at the end.

"The whole skin of the animal is rough, and covered very thinly with short black hair. The skin was not more than one third of an inch in thickness at the strongest part; under the belly it was hardly a quarter of an inch; any part of it might be cut through with ease by a common dissecting knife. The animal had not that appearance of armour which is observed in the single-horned rhinoceros. Since I dissected the male, I have had an opportunity of examining a female, which was more of a lead colour: it was younger than the male, and had not so many folds or wrinkles in its skin; of course it had still less the appearance of armour. The only external mark which distinguishes it from the male is the vagina, which is close to the anus; whereas in the male the opening for the penis is 18 inches below the anus."

From the difference between this account and Spar-

man's, which in some particulars is considerable, and from the difference of shape, we are disposed to think them varieties. Mr Bruce's drawing of the rhinoceros bicornis is unquestionably a deception; the body of the animal, as there represented, corresponds exactly with that of the unicornis except in its having two horns on its head. In the museum of the late Dr William Hunter, the two-horned animal was preserved, agreeing exactly with the general accounts and figures we have of that animal, but differing essentially from Mr Bruce's. For further particulars respecting these curious animals, we refer to Buffon, vol. vi. p. 92—117; Sparman's Voyage to the Cape, vol. ii. chap. 12.; and Bruce's Travels, vol. iv. p. 296, &c. and Appendix, p. 85, &c.

RHINOCEROS-Bird. See BUCEROS.

RHITYMNA. See RETIMO.

RHIZOBALUS, in botany: A genus of the tetragynia order, belonging to the polyandria class of plants; and in the natural method ranking under the 23d order, *Tribilate*. The calyx monophyllous, fleshy, and downy; the corolla consists of five petals, which are round, concave, fleshy, and much larger than the calyx; the stamina are very numerous, filiform, and longer than the corolla; the styli are four, filiform, and of the length of the stamina; the pericarpium has four drupæ, kidney-shaped, compressed with a fleshy substance inside, and in the middle a flat large nut containing a kidney-shaped kernel. Of this there is only one species, viz. *Pekia*. The nut is sold in the shops as American nuts; they are flat, tuberculated, and kidney-shaped, containing a kernel of the same shape, which is sweet and agreeable. Clusius gives a good figure of the nut, and Aublet has one of the whole plant.

RHIZOPHORA, the MANGROVE, or *Mangle*, in botany: A genus of the monogynia order, belonging to the dodecandria class of plants; and in the natural method ranking under the 12th order, *Holoracea*. The calyx is quadripartite, the corolla partite; there is one seed, very long, and carnos at the base. These plants are natives of the East and West Indies, and often grow 40 or 50 feet high. They grow only in water and on the banks of rivers, where the tide flows up twice a-day. They preserve the verdure of their leaves throughout the year. From the lowest branches issue long roots, which hang down to the water, and penetrate into the earth. In this position they resemble so many arcades, from five to ten feet high, which serve to support the body of the tree, and even to advance it daily into the bed of the water. These arcades are so closely intertwined one with another, that they form a kind of natural and transparent terrace, raised with such solidity over the water, that one might walk upon them, were it not that the branches are too much encumbered with leaves. The most natural way of propagating these trees, is to suffer the several slender small filaments which issue from the main branches to take root in the earth. The most common method, however, is that of laying the small lower branches in baskets of mould or earth till they have taken root.

The description just given pertains chiefly to a particular species of mangrove, termed by the West Indians

that once at a hunting match he saw the point of a rhinoceros's horn broken off by a musket-shot; the consequence of which was, that the creature was for a moment deprived of all appearance of life.

dians *black mangles*, on account of the brown dusky colour of the wood. The bark is very brown, smooth, pliant when green, and generally used in the West India islands for tanning of leather. Below this bark lies a cuticle, or skin, which is lighter, thinner, and more tender. The wood is nearly of the same colour as the bark; hard, pliant, and very heavy. It is frequently used for fuel, for which purpose it is said to be remarkably proper: the fires which are made of this wood being both clearer, more ardent and durable than those made of any other materials whatever.—The wood is compact; almost incorruptible; never splinters; is easily worked; and were it not for its enormous weight, would be commodiously employed in almost all kinds of work, as it possesses every property of good timber. To the roots and branches of mangroves that are immersed in the water, oysters frequently attach themselves; so that wherever this curious plant is found growing on the sea-shore, oyster-fishing is very easy; as in such cases these shell-fish may be literally said to be gathered upon trees.

The red mangle or mangrove grows on the sea-shore, and at the mouth of large rivers; but does not advance, like the former, into the water. It generally rises to the height of 20 or 30 feet, with crooked, knotty branches, which proceed from all parts of the trunk. The bark is slender, of a brown colour, and, when young, is smooth, and adheres very closely to the wood; but when old, appears quite cracked, and is easily detached from it. Under this bark is a skin as thick as parchment, red, and adhering closely to the wood, from which it cannot be detached till the tree is felled and dry. The wood is hard, compact, heavy, of a deep red, with a very fine grain. The pith or heart of the wood being cut into small pieces, and boiled in water, imparts a very beautiful red to the liquid, which communicates the same colour to wool and linen. The great weight and hardness of the wood prevents it from being generally used. From the fruit of this tree, which, when ripe, is of a violet colour, and resembles some grapes in taste, is prepared an agreeable liquor, much esteemed by the inhabitants of the Caribbee islands.

White mangle, so termed from the colour of its wood, grow, like the two former, upon the banks of rivers, but is seldom found near the sea. The bark is grey; the wood, as we have said, white, and when green, supple; but dries as soon as cut down, and becomes very light and brittle. This species is generally called *rope-mangrove*, from the use to which the bark is applied by the inhabitants of the West Indies. This bark, which, by reason of the great abundance of sap, is easily detached when green from the wood, is beaten or bruised betwixt two stones, until the hard and woody part is totally separated from that which is soft and tender. This last, which is the true cortical substance, is twisted into ropes of all sizes, which are exceedingly strong, and not apt to rot in the water.

RHODES, a celebrated island in the Archipelago, the largest and most easterly of the Cyclades, was known in ancient times by the names of *Asleria*, *Ophiusa*, *Æthraea*, *Trinacria*, *Corymbia*, *Poesia*, *Atabyria*, *Marcia*, *Oloessa*, *Stadia*, *Telbinis*, *Pelagia*, and *Rhodus*. In later ages, the name of *Rhodus*, or *Rhodes*, prevailed, from the Greek word *rhodon*, as is commonly sup-

posed, signifying a "rose;" the island abounding very much with these flowers. Others, however, give different etymologies, among which it is difficult to find one preferable to another. It is about 20 miles distant from the coasts of Lycia and Caria, and about 120 miles in compass.

Several ancient authors assert, that Rhodes was formerly covered by the sea, but gradually raised its head above the waves, and became an island. Delos and Rhodes (says Pliny), islands which have long been celebrated, sprung at first from the sea. The same fact is supported by such a variety of other evidence as render it indubitable. Philo† ascribes the event to the decrease of the waters of the ocean. If his conjecture be not without foundation, most of the isles of the Archipelago, being lower than Rhodes, must have had a similar origin. But it is much more probable that the volcanic fires, which in the fourth year of the 135th Olympiad, raised Therafia and Thera, known at present by the name of *Santorin*, from the depths of the sea, and have in our days thrown out several small islands adjacent, also produced in some ancient era Rhodes and Delos.

The first inhabitants of Rhodes, according to Diodorus Siculus, were called the *Telchines*, who came originally from the island of Crete. These, by their skill in astrology, perceiving that the island was soon to be drowned with water, left their habitations, and made room for the Heliades, or grandsons of Phœbus, who took possession of the island after that god had cleared it from the water and mud with which it was overwhelmed. These Heliades, it seems, excelled all other men in learning, and especially in astrology; invented navigation, &c. In after ages, however, being infested with great serpents which bred in the island, they had recourse to an oracle in Delos, which advised them to admit Phorbas, a Thessalian, with his followers, into Rhodes. This was accordingly done; and Phorbas having destroyed the serpents, was, after his death, honoured as a demigod. Afterwards a colony of Cretans settled in some part of the island, and a little before the Trojan war, Tlepölinus the son of Hercules, who was made king of the whole island, and governed with great justice and moderation.

After the Trojan war, all the ancient inhabitants were driven out by the Dorians, who continued to be masters of the island for many ages. The government was at first monarchical; but a little before the expedition of Xerxes into Greece, a republican form of government was introduced; during which the Rhodians applied themselves to navigation, and became very powerful by sea, planting several colonies in distant countries. In the time of the Peloponnesian war, the republic of Rhodes was rent into two factions, one of which favoured the Athenians, and another the Spartans; but at length the latter prevailing, democracy was abolished, and an aristocracy introduced. About 351 B. C. we find the Rhodians oppressed by Mausolus king of Caria, and at last reduced by Artemisia his widow. In this emergency, they applied to the Athenians; by whose assistance, probably, they regained their liberty.

From this time to that of Alexander the Great, the Rhodians enjoyed an uninterrupted tranquillity. To him they voluntarily submitted; and were on that account his

Rhodes.

Its origin.

* Pliny, lib. 2. cap. 87.

† Philo de Mundo.

3. First inhabitants

4. Driven out by the Dorians.

5. Submit to Alexander, but revolt after his death.

Rhodes. count highly favoured by him: but no sooner did they hear of his death, than they drove out the Macedonian garrisons, and once more became a free people. About this time happened a dreadful inundation at Rhodes; which, being accompanied with violent storms of rain, and hailstones of an extraordinary bigness, beat down many houses, and killed great numbers of the inhabitants. **6** As the city was built in the form of an amphitheatre, and no care had been taken to clear the pipes and conduits which conveyed the water into the sea, the lower parts of the city were in an instant laid under water, several houses quite covered, and the inhabitants drowned before they could get to the higher places. As the deluge increased, and the violent showers continued, some of the inhabitants made to their ships, and abandoned the place, while others miserably perished in the waters. But while the city was thus threatened with utter destruction, the wall on a sudden burst asunder, and the water discharging itself by a violent current into the sea, unexpectedly delivered the inhabitants from all danger.

Violent inundation at Rhodes.

7
Difference with Antigonus.

The Rhodians suffered greatly by this unexpected accident, but soon retrieved their losses by a close application to trade. During the wars which took place among the successors of Alexander, the Rhodians observed a strict neutrality; by which means they enriched themselves so much, that Rhodes became one of the most opulent states of that age; inasmuch that, for the common good of Greece, they undertook the *piratic war*, and, at their own charge, cleared the seas of the pirates who had for many years infested the coasts of Europe and Asia. However, notwithstanding the neutrality they professed, as the most advantageous branches of their commerce were derived from Egypt, they were more attached to Ptolemy, king of that country, than to any of the neighbouring princes. When therefore Antigonus, having engaged in a war with Ptolemy about the island of Cyprus, demanded succours of them, they earnestly intreated him not to compel them to declare war against their ancient friend and ally. But this answer, prudent as it was, drew upon them the displeasure of Antigonus, who immediately ordered one of his admirals to sail with his fleet to Rhodes, and seize all the ships that came out of the harbour for Egypt. The Rhodians, finding their harbour blocked up by the fleet of Antigonus, equipped a good number of galleys, fell upon the enemy, and obliged him, with the loss of many ships, to quit his station. Hereupon Antigonus, charging them as aggressors, and beginners of an unjust war, threatened to besiege their city with the strength of his whole army. The Rhodians endeavoured by frequent embassies to appease his wrath; but all their remonstrances served rather to provoke than allay his resentment: and the only terms upon which he would hearken to any accommodation were, that the Rhodians should declare war against Ptolemy, that they should admit his fleet into their harbour, and that an hundred of the chief citizens should be delivered up to him as hostages for the performance of these articles. The Rhodians sent ambassadors to all their allies, and to Ptolemy in particular, imploring their assistance, and representing to the latter, that their attachment to his interest had drawn upon them the danger to which they were exposed. The preparations on both sides were immense. As Antigonus was near fourscore years of

age at that time, he committed the whole management of the war to his son Demetrius, who appeared before the city of Rhodes with 200 ships of war, 170 transports having on board 40,000 men, and 1000 other vessels laden with provisions and all sorts of warlike engines. As Rhodes had enjoyed for many years a profound tranquillity, and been free from all devastations, the expectation of booty, in the plunder of so wealthy a city, allured multitudes of pirates and mercenaries to join Demetrius in this expedition; inasmuch that the whole sea between the continent and the island was covered with ships; which struck the Rhodians, who had a prospect of this mighty armada from the walls, with great terror and consternation.

Demetrius, having landed his troops without the reach of the enemy's machines, detached several small bodies to lay waste the country round the city, and cut down the trees and groves, employing the timber, and materials of the houses without the walls, to fortify his camp with strong ramparts and a treble palisade; which work, as many hands were employed, was finished in a few days. The Rhodians, on their part, prepared for a vigorous defence. Many great commanders, who had signalized themselves on other occasions, threw themselves into the city, being desirous to try their skill in military affairs against Demetrius, who was reputed one of the most experienced captains in the conduct of sieges that antiquity had produced. The besieged began with dismissing from the city all such persons as were useless; and then taking an account of those who were capable of bearing arms, they found that the citizens amounted to 6000, and the foreigners to 1000. Liberty was promised to all the slaves who should distinguish themselves by any glorious action, and the public engaged to pay the masters their full ransom. A proclamation was likewise made, declaring, that whoever died in defence of their country should be buried at the expense of the public; that his parents and children should be maintained out of the treasury; that fortunes should be given to his daughters; and his sons, when they were grown up, should be crowned and presented with a complete suit of armour at the great solemnity of Bacchus; which decree kindled an incredible ardour in all ranks of men.

Demetrius, having planted all his engines, began to batter with incredible fury the walls on the side of the harbour; but was for eight days successively repulsed by the besieged, who set fire to most of his warlike engines, and thereby obliged him to allow them some respite, which they made good use of in repairing the breaches, and building new walls where the old ones were either weak or low. When Demetrius had repaired his engines, he ordered a general assault to be made, and caused his troops to advance with loud shouts, thinking by this means to strike terror into the enemy. But the besieged were so far from being intimidated, that they repulsed the aggressors with great slaughter, and performed the most astonishing feats of bravery. Demetrius returned to the assault next day; but was in the same manner forced to retire, after having lost a great number of men, and some officers of distinction. He had seized, at his first landing, an eminence at a small distance from the city; and, having fortified this advantageous post, he caused several batteries to be erected there, with engines, which incessantly discharged

Rhodes
8
Rhodes
figured
Demetrius

9
The in
bitants
pare fo
vigorous
defence

10
Engine
Demetrius
burnt.

against the walls stones of 150 pounds weight. The towers, being thus furiously battered night and day, began to totter, and several breaches were opened in the walls: but the Rhodians, unexpectedly falling out, drove the enemy from their post, overturned their machines, and made a most dreadful havoc; inasmuch that some of them retired on board their vessels, and were with much ado prevailed upon to come ashore again.

Demetrius now ordered a scalade by sea and land at the same time; and so employed the besieged, that they were at a loss what place they should chiefly defend. The attack was carried on with the utmost fury on all sides, and the besieged defended themselves with the greatest intrepidity. Such of the enemy as advanced first were thrown down from the ladders, and miserably bruised. Several of the chief officers, having mounted the walls to encourage the soldiers by their example, were there either killed or taken prisoners. After the combat had lasted many hours, with great slaughter on both sides, Demetrius, notwithstanding all his valour, thought it necessary to retire, in order to repair his engines, and give his men some days rest.

Demetrius being sensible that he could not reduce the city till he was master of the port, after having refreshed his men, he returned with new vigour against the fortifications which defended the entry into the harbour. When he came within the cast of a dart, he caused a vast quantity of burning torches and firebrands to be thrown into the Rhodian ships, which were riding there; and at the same time galled, with dreadful showers of darts, arrows, and stones, such as offered to extinguish the flames. However, in spite of their utmost efforts, the Rhodians put a stop to the fire; and, having with great expedition manned three of their strongest ships, drove with such violence against the vessels on which the enemy's machines were planted, that they were shattered in pieces, and the engines dismounted and thrown into the sea. Excestus the Rhodian admiral, being encouraged by this success, attacked the enemy's fleet with his three ships, and sunk a great many vessels; but was himself at last taken prisoner: the other two vessels made their escape, and regained the port.

As unfortunate as this last attack had proved to Demetrius, he determined to undertake another; and, in order to succeed in his attempt, he ordered a machine of a new invention to be built, which was thrice the height and breadth of those he had lately lost. When the work was finished, he caused the engine to be placed near the port, which he was resolved, at all adventures, to force. But as it was upon the point of entering the harbour, a dreadful storm arising, drove it against the shore, with the vessels on which it had been reared. The besieged, who were attentive to improve all favourable conjunctures, while the tempest was still raging, made a sally against those who defended the eminence mentioned above; and, though repulsed several times, carried it at last, obliging the Demetrians, to the number of 400, to throw down their arms and submit. After this victory gained by the Rhodians, there arrived to their aid 150 Gnolians, and 500 men sent by Ptolemy from Egypt, most

of them being natives of Rhodes, who had served among the king's troops. Rhodes.

Demetrius being extremely mortified to see all his batteries against the harbour rendered ineffectual, resolved to employ them by land, in hopes of carrying the city by assault, or at least reducing it to the necessity of capitulating. With this view, having got together a vast quantity of timber and other materials, he framed the famous engine called *helepolis*, ¹² which was by many degrees larger than any that had ever been invented before. Its basis was square, each side being in length near 50 cubits, and made up of square pieces of timber, bound together with plates of iron. In the middle part he placed thick planks, about a cubit distance from each other; and on these the men were to stand who forced the engine forward. The whole was moved upon eight strong and large wheels, whose felloes were strengthened with strong iron plates. In order to facilitate and vary the movements of the *helepolis*, casters were placed under it, whereby it was turned in an instant to what side the workmen and engineers pleased. From each of the four angles a large pillar of wood was carried to about the height of 100 cubits, and inclining to each other; the whole machine consisting of nine stories, whose dimensions gradually lessened in the ascent. The first story was supported by 43 beams, and the last by no more than nine. Three sides of the machine were plated over with iron, to prevent its being damaged by the fire that might be thrown from the city. In the front of each story were windows of the same size and shape as the engines that were to be discharged from thence. To each window were shutters, to draw up for the defence of those who managed the machines, and to deaden the force of the stones thrown by the enemy, the shutters being covered with skins stuffed with wool. Every story was furnished with two large staircases, that whatever was necessary might be brought up by one, while others were going down by the other, and so every thing may be dispatched without tumult or confusion. This huge machine was moved forwards by 3000 of the strongest men of the whole army; but the art with which it was built greatly facilitated the motion. Demetrius caused likewise to be made several testudoes or pent-houses, to cover his men while they advanced to fill up the trenches and ditches; and invented a new sort of galleries, through which those who were employed at the siege might pass and repass at their pleasure, without the least danger. He employed all his seamen in levelling the ground over which the machines were to be brought up, to the space of four furlongs. The number of workmen who were employed on this occasion amounted to 30,000.

In the mean time, the Rhodians, observing these formidable preparations, were busy in raising a new wall within that which the enemy intended to batter with the *helepolis*. In order to accomplish this work, they pulled down the wall which surrounded the theatre, some neighbouring houses, and even some temples, after having solemnly promised to build more magnificent structures in honour of the gods, if the city were preserved. At the same time, they sent out nine of their best ships to seize such of the enemy's vessels as they could meet with, and thereby distress them for

¹² Demetrius frames a new machine called *helepolis*.

¹³ The Rhodians raise a new wall.

Rhodes. want of provisions. As these ships were commanded by their bravest sea-officers, they soon returned with an immense booty, and a great many prisoners. Among other vessels, they took a galley richly laden, on board of which they found a great variety of valuable furniture, and a royal robe, which Phila herself had wrought and sent as a present to her husband Demetrius, accompanied with a letter written with her own hand. The Rhodians sent the furniture, the royal robe, and even the letter, to Ptolemy; which exasperated Demetrius to a great degree.

While Demetrius was preparing to attack the city, the Rhodians having assembled the people and magistrates to consult about the measures they should take, some proposed in the assembly the pulling down of the statues of Antigonus and his son Demetrius, which till then had been held in the utmost veneration. But this proposal was generally rejected with indignation, and their prudent conduct greatly allayed the wrath both of Antigonus and Demetrius. However, the latter continued to carry on the siege with the utmost vigour, thinking it would reflect no small dishonour on him were he obliged to quit the place without making himself master of it. He caused the walls to be secretly undermined: but, when they were ready to fall, a deserter very opportunely gave notice of the whole to the townsmen; who having, with all expedition, drawn a deep trench all along the wall, began to countermine, and, meeting the enemy under ground, obliged them to abandon the work. While both parties guarded the mines, one Athenagoras, a Milesian, who had been sent to the assistance of the Rhodians by Ptolemy with a body of mercenaries, promised to betray the city to the Demetrians, and let them in thro' the mines in the night-time. But this was only in order to ensnare them; for Alexander, a noble Macedonian, whom Demetrius had sent with a choice body of troops to take possession of a post agreed on, no sooner appeared, but he was taken prisoner by the Rhodians, who were waiting for him under arms.—Athenagoras was crowned by the senate with a crown of gold, and presented with five talents of silver.

Demetrius now gave over all thoughts of undermining the walls, and placed all his hopes of reducing the city in the battering-engines which he had contrived. Having therefore levelled the ground under the walls, he brought up his helepolis, with four testudoes on each side of it. Two other testudoes of an extraordinary size, bearing battering-rams, were likewise moved forwards by 1000 men. Each story of the helepolis was filled with all sorts of engines for discharging of stones, arrows, and darts. When all things were ready, Demetrius ordered the signal to be given; when his men, setting up a shout, assailed the city on all sides both by sea and land. But, in the heat of the attack, when the walls were ready to fall by the repeated strokes of the battering-rams, ambassadors arrived from Cnidus, earnestly soliciting Demetrius to suspend all further hostilities, and at the same time giving him hopes that they should prevail upon the Rhodians to submit to an honourable capitulation. A suspension of arms was accordingly agreed on, and ambassadors sent from both sides. But the Rhodians refusing to capitulate on the conditions offered them, the attack was renewed with so much fury,

and the machines played off in so brisk a manner, that a large tower built with square stones, and the wall that flanked it, were battered down. The besieged, nevertheless, fought in the breach with so much courage and resolution, that the enemy, after various unsuccessful attempts, were forced to abandon the enterprise, and retire.

In this conjuncture, a fleet which Ptolemy had freighted with 300,000 measures of corn, and different kinds of pulse for the use of the Rhodians, arrived very seasonably in the port, notwithstanding the vigilance of the enemy's ships, which cruized on the coasts of the island to surprise them. A few days after came in safe two other fleets, one sent by Cassander, with 100,000 bushels of barley; the other by Lysimachus, with 400,000 bushels of corn and as many of barley. This seasonable and plentiful supply arriving when the city began to suffer for want of provisions, inspired the besieged with new courage, and raised their drooping spirits. Being thus animated, they formed a design of setting the enemy's engines on fire; and with this view ordered a body of men to sally out the night ensuing, about the second watch, with torches and firebrands, having first placed on the walls an incredible number of engines, to discharge stones, arrows, darts, and fire-balls, against those who should attempt to oppose their detachment. The Rhodian troops, pursuant to their orders, all on a sudden sallied out, and advancing, in spite of all opposition, to the batteries, set them on fire, while the engines from the walls played incessantly on those who endeavoured to extinguish the flames. The Demetrians on this occasion fell in great numbers, being incapable, in the darkness of the night, either to see the engines that continually discharged showers of stones and arrows upon them, or to join in one body and repulse the enemy. The conflagration was so great, that several plates of iron falling from the helepolis, that vast engine would have been entirely consumed, had not the troops that were stationed in it with all possible speed quenched the fire with water, before prepared, and ready in the apartments of the engine against such accidents. Demetrius, fearing lest all his machines should be consumed, called together, by sound of trumpet, those whose province it was to move them; and, by their help, brought them off before they were entirely destroyed. When it was day, he commanded all the darts and arrows that had been shot by the Rhodians to be carefully gathered, that he might from their number form some judgement of the number of machines in the city. Above 800 firebrands were found on the spot, and no fewer than 1500 darts, all discharged in a very small portion of the night. This struck the prince himself with no small terror; for he never imagined that they would have been able to bear the charges of such formidable preparations. However, after having caused the slain to be buried, and given directions for the curing of the wounded, he applied himself to the repairing of his machines, which had been dismounted and rendered quite unserviceable.

In the mean time, the besieged, improving the respite they allowed them by the removal of the machines, built a third wall in the form of a crescent, which took in all that part that was most exposed to the enemy's batteries; and, besides, drew a deep trench behind the breach.

14
They all
undermined
without
success.

15
A general
assault to
no purpose.

breach, to prevent the enemy from entering the city that way. At the same time, they detached a squadron of their best ships, under the command of Amyntas, who made over to the continent of Asia; and there meeting with some privateers who were commissioned by Demetrius, took both the ships and the men, among whom were Timocles the chief of the pirates, and several other officers of distinction belonging to the fleet of Demetrius. On their return, they fell in with several vessels laden with corn for the enemy's camp, which they likewise took, and brought into the port. These were soon followed by a numerous fleet of small vessels loaded with corn and provisions sent them by Ptolemy, together with 1500 men, commanded by Antigonus a Macedonian of great experience in military affairs.—Demetrius, in the mean time, having repaired his machines, brought them up anew to the walls; which he incessantly battered till he opened a great breach and threw down several towers. But when he came to the assault, the Rhodians, under the command of Aminias, defended themselves with such resolution and intrepidity, that he was in three successive attacks repulsed with great slaughter, and at last forced to retire. The Rhodians likewise, on this occasion, lost several officers; and amongst others, the brave Aminias their commander.

While the Rhodians were thus signaling themselves in the defence of their country, a second embassy arrived at the camp of Demetrius from Athens and the other cities of Greece, soliciting Demetrius to compose matters, and strike up a peace with the Rhodians. At the request of the ambassadors, who were in all above 50, a cessation of arms was agreed upon; but the terms offered by Demetrius being anew rejected by the Rhodians, the ambassadors returned home without being able to bring the contending parties to an agreement. Hostilities were therefore renewed; and Demetrius, whose imagination was fertile in expedients for succeeding in his projects, formed a detachment of 1500 of his best troops, under the conduct of Alcimus and Mancius, two officers of great resolution and experience, ordering them to enter the breach at midnight, and, forcing the entrenchment behind it, to possess themselves of the posts about the theatre, where it would be no difficult matter to maintain themselves against any efforts of the townsmen. In order to facilitate the execution of so important and dangerous an undertaking, and amuse the enemy with false attacks, he at the same time, upon a signal given, ordered the rest of the army to set up a shout, and attack the city on all sides both by sea and land. By this means he hoped that, the besieged being alarmed in all parts, his detachment might find an opportunity of forcing the entrenchments which covered the breach, and afterwards of seizing the advantageous post about the theatre. This feint had all the success the prince could expect; for the troops having set up a shout from all quarters, as if they were advancing to a general assault, the detachment commanded by Alcimus and Mancius entered the breach, and fell upon those who defended the ditch, and the wall that covered it, with such vigour, that, having slain the most part of them and put the rest in confusion, they advanced to the theatre, and seized on the post adjoining to it. This occasioned a general uproar in the city, as if it had been

already taken: but the commanding officers dispatched orders to the soldiers on the ramparts not to quit their posts, nor stir from their respective stations. Having thus secured the walls, they put themselves at the head of a chosen body of their own troops, and of those who were lately come from Egypt, and with these charged the enemy's detachment. But the darkness of the night prevented them from dislodging the enemy and regaining the advantageous posts they had seized. Day, however, no sooner appeared, than they renewed their attack with wonderful bravery. The Demetrians without the walls, with loud shouts endeavoured to animate those who had entered the place, and inspire them with resolution to maintain their ground till they were relieved with fresh troops. The Rhodians being sensible that their fortunes, liberties, and all that was dear to them in the world, lay at stake, fought like men in the utmost despair, the enemy defending their posts for several hours without giving ground in the least. At length the Rhodians, encouraging each other to exert themselves in defence of their country, and animated by the example of their leaders, made a last effort, and, breaking into the very heart of the enemy's battalion, there killed both their commanders. After their death the rest were easily put in disorder, and all to a man either killed or taken prisoners. The Rhodians likewise on this occasion lost many of their best commanders; and among the rest Damotetis, their chief magistrate, a man of extraordinary valour, who had signaled himself during the whole time of the siege.

Demetrius, not at all discouraged by this check, was making the necessary preparations for a new assault, when he received letters from his father Antigonus, enjoining him to conclude a peace with the Rhodians upon the best terms he could get, lest he should lose his whole army in the siege of a single town. From this time Demetrius wanted only some plausible pretence for breaking up the siege. The Rhodians likewise were now more inclined to come to an agreement than formerly; Ptolemy having acquainted them that he intended to send a great quantity of corn, and 3000 men to their assistance, but that he would first have them try whether they could make up matters with Demetrius upon reasonable terms. At the same time ambassadors arrived from the Ætolian republic, soliciting the contending parties to put an end to a war which might involve all the east in endless calamities.

An accident which happened to Demetrius in this conjuncture, did not a little contribute towards the wished-for pacification. This prince was preparing to advance his helepolis against the city, when a Rhodian engineer found means to render it quite useless. He undermined the tract of ground over which the helepolis was to pass the next day in order to approach the walls. Demetrius, not suspecting any stratagem of this nature, caused the engine to be moved forward, which coming to the place that was undermined, sunk so deep into the ground that it was impossible to draw it out again. This misfortune, if we believe Vegetius and Vitruvius, determined Demetrius to hearken to the Ætolian ambassadors, and at last to strike up a peace upon the following conditions: That the republic of Rhodes should be maintained in the full enjoyment of their ancient rights, privileges, and liberties, without any foreign garrison; that they should renew their ancient alliance

Rhodes.

20
But are all
killed or
taken.

21
The hele-
polis ren-
dered use-
less.

22
The nego-
tiated.

Rhodes.

with Antigonus, and assist him in his wars against all states and princes except Ptolemy king of Egypt; and that, for the effectual performance of the articles stipulated between them, they should deliver 100 hostages, such as Demetrius should make choice of, except those who bore any public employment.

Thus was the siege raised, after it had continued a whole year; and the Rhodians amply rewarded all those who had distinguished themselves in the service of their country. They also set up statues to Ptolemy, Cassander, and Lyfimachus; to all of whom they paid the highest honours, especially to the first, whom they worshipped as a god. Demetrius at his departure presented them with the helepolis, and all the other machines which he had employed in battering the city; from the sale of which, with some additional sums of their own, they erected the famous colossus. After this they applied themselves entirely to trade and navigation; by which means they became quite masters of the sea, and much more opulent than any of the neighbouring nations. As far as lay in their power, they endeavoured to preserve a neutrality with regard to the jarring nations of the east. However, they could not avoid a war with the Byzantines, the occasion of which was as follows: The Byzantines being obliged to pay a yearly tribute of 80 talents to the Gauls, in order to raise this sum, they came to a resolution of laying a toll on all ships that traded to the Pontic sea. This resolution provoked the Rhodians, who were a trading nation, above all the rest. For this reason they immediately dispatched ambassadors to the Byzantines, complaining of the new tax; but as the Byzantines had no other method of satisfying the Gauls, they persisted in their resolution. The Rhodians now declared war, and prevailed upon Prusias king of Bithynia, and Attalus king of Pergamus, to assist them; by which confederacy the Byzantines were so intimidated, that they agreed to exact no toll from ships trading to the Pontic sea, the demand which had been the occasion of the war.

23
War with
the Byzantines.

24
A dreadful
earthquake
at Rhodes.

About this time happened a dreadful earthquake, which threw down the colossus, the arsenal, and great part of the city-walls of Rhodes; which calamity the Rhodians improved to their advantage, sending ambassadors to all the Grecian princes and states, to whom their losses were so much exaggerated, that their countrymen obtained immense sums of money under pretence of repairing them. Hiero king of Syracuse presented them with 100 talents; and, besides, exempted from all tolls and duties such as traded to Rhodes. Ptolemy king of Egypt gave them 100 talents, a million of measures of wheat, materials for building 20 quinqueremes and the like number of triremes; and, besides, sent them 100 architects, 300 workmen, and materials for repairing their public buildings, to a great value, paying them moreover 14 talents a-year for the maintenance of the workmen whom he sent them. Antigonus gave them 100 talents of silver, with 10,000 pieces of timber, each piece being 16 cubits long; 7000 planks; 3000 pounds of iron, as many of pitch and resin, and 1000 measures of tar. Chryseis, a woman of distinction, sent them 100,000 measures of wheat, and 3000 pounds of lead. Antiochus exempted from all taxes and duties the Rhodian ships trading to his dominions; presented them with 10 galleys, and 200,000

measures of corn, with many other things of great value. Prusias, Mithridates, and all the princes then reigning in Asia, made them proportionable presents: in short, all the Greek towns and nations, all the princes of Europe and Asia, contributed, according to their ability, to the relief of the Rhodians on that occasion; insomuch that their city not only soon rose from its ruins, but attained to an higher pitch of splendor than ever.

In the year 203 B. C. the Rhodians engaged in a war with Philip of Macedon. This monarch had invaded the territories of Attalus king of Pergamus; and because the Rhodians seemed to favour their ancient friend, sent one Heraclides, by birth a Tarentine, to set fire to their fleet; at the same time that he dispatched ambassadors into Crete, in order to stir up the Cretans against the Rhodians, and prevent them from sending any assistance to Attalus. Upon this war was immediately proclaimed. Philip at first gained an inconsiderable advantage in a naval engagement; but the next year was defeated with the loss of 11,000 men, while the Rhodians lost but 60 men and Attalus 70. After this he carefully avoided coming to an engagement at sea either with Attalus or the Rhodians. The combined fleet, in the mean time, sailed towards the island of Ægina in hopes of intercepting him: but having failed in their purpose, they sailed to Athens, where they concluded a treaty with that people; and, on their return, drew all the Cyclades into a confederacy against Philip. But while the allies were thus wasting their time in negotiations, Philip, having divided his forces into two bodies, sent one, under the command of Philocles, to ravage the Athenian territories; and put the other aboard his fleet, with orders to sail to Meronea, a city on the north side of Thrace. He then marched towards that city himself with a body of forces, took it by assault, and reduced a great many others; so that the confederates would, in all probability, have had little reason to boast of their success, had not the Romans come to their assistance, by whose help the war was soon terminated to their advantage. In the war which took place between the Romans and Antiochus the Great king of Syria, the Rhodians were very useful allies to the former. The best part of their fleet was indeed destroyed by a treacherous contrivance of Polyxenades the Syrian admiral; but they soon fitted out another, and defeated a Syrian squadron commanded by the celebrated Hannibal, the Carthaginian commander; after which, in conjunction with the Romans, they utterly defeated the whole Syrian fleet commanded by Polyxenades; which, together with the loss of the battle of Magnesia, so dispirited Antiochus, that he submitted to whatever conditions the Romans pleased.

For these services the Rhodians were rewarded with the provinces of Lycia and Caria; but tyrannizing over the people in a terrible manner, the Lycians applied to the Romans for protection. This was readily granted; but the Rhodians were so much displeased with their interfering in this matter, that they secretly favoured Perseus in the war which broke out between him and the Roman republic. For this offence the two provinces above-mentioned were taken from them; but the Rhodians, having banished or put death those who had favoured Perseus, were again admitted into fa-

your,

27
Rhodes be-
d by
thri-
es with
succes-
Rhodes.
your, and greatly honoured by the senate. In the Mi-
thridatic war, their alliance with Rome brought upon
them the king of Pontus with all his force; but having
lost the greatest part of his fleet before the city, he was
obliged to raise the siege without performing any re-
markable exploit. In the war which Pompey made on
the Cilician pirates, the Rhodians assisted him with all
their naval force, and had a great share in the victories
which he gained. In the civil war between Cæsar and
Pompey, they assisted the latter with a very numerous
fleet. After his death they sided with Cæsar; which
drew upon them the resentment of C. Cassius, who ad-
vanced to the island of Rhodes with a powerful fleet,
after having reduced the greatest part of the continent.
The Rhodians, terrified at his approach, sent ambaf-
sadors intreating him to make up matters in an amicable
manner, and promising to stand neuter, and recal the
ships which they had sent to the assistance of the trium-
viri. Cassius insisted upon their delivering up their
fleet to him, and putting him in possession both of their
harbour and city. This demand the Rhodians would
by no means comply with, and therefore began to put
themselves in a condition to stand a siege; but first sent
Archelaus, who had taught Cassius the Greek tongue
while he studied at Rhodes, to intercede with his dis-
ciple in their behalf. Archelaus could not, with all his
authority, prevail upon him to moderate his demands;
wherefore the Rhodians, having created one Alexander,
a bold and enterprising man, their prætor or prytanis,
equipped a fleet of 33 sail, and sent it out under the
command of Mnaseus, an experienced sea-officer, to offer
Cassius battle. Both fleets fought with incredible
bravery, and the victory was long doubtful: but the
Rhodians, being at length overpowered by numbers,
were forced to return with their fleet to Rhodes; two
of their ships being sunk, and the rest very much damaged
by the heavy ships of the Romans. This was the first
time, as our author observes, that the Rhodians were
fairly overcome in a sea-fight.

28
The Rho-
dians de-
clated in
a naval
engage-
ment by
Cassius.
Cassius, who had beheld this fight from a neighbour-
ing hill, having refitted his fleet, which had been no
less damaged than that of the Rhodians, repaired to
Loryma, a stronghold on the continent belonging to
the Rhodians. This castle he took by assault; and from
hence conveyed his land-forces, under the conduct of
Fannius and Lentulus, over into the island. His fleet
consisted of 80 ships of war and above 200 transports.
The Rhodians no sooner saw this mighty fleet appear,
but they went out again to meet the enemy. The se-
cond engagement was far more bloody than the first;
many ships were sunk, and great numbers of men kill-
ed on both sides. But victory anew declared for the
Romans; who immediately blocked up the city of
Rhodes both by sea and land. As the Rhodians had
not had time to furnish the city with sufficient store of
provisions, some of the inhabitants, fearing that if it
were taken either by assault or by famine, Cassius would
put all the inhabitants to the sword, as Brutus had
lately done at Xanthus, privately opened the gate to
him, and put him in possession of the town, which he
nevertheless treated as if it had been taken by assault.
He commanded 50 of the chief citizens, who were sus-
pected to favour the adverse party, to be brought be-
fore him, and sentenced them all to die; others, to the
number of 25, who had commanded the fleet or army

because they did not appear when summoned, he pro-
scribed. Having thus punished such as had either act-
ed or spoken against him or his party, he commanded
the Rhodians to deliver up to him all their ships, and
whatever money they had in the public treasury. He
then plundered the temples; stripping them of all their
valuable furniture, vessels, and statues. He is said not
to have left one statue in the whole city, except that
of the sun; bragging, at his departure, that he had
stripped the Rhodians of all they had, leaving them no-
thing but the sun. As to private persons, he command-
ed them, under severe penalties, to bring to him all the
gold and silver they had, promising, by a public crier,
a tenth part to such as should discover any hidden trea-
sures. The Rhodians at first concealed some part of
their wealth, imagining that Cassius intended by this
proclamation only to terrify them; but when they
found he was in earnest, and saw several wealthy citi-
zens put to death for concealing only a small portion
of their riches, they desired that the time prefixed for
the bringing in their gold and silver might be prolong-
ed. Cassius willingly granted them their request; and
then through fear they dug up what they had hid un-
der ground, and laid at his feet all they were worth in
the world. By this means he extorted from private
persons above 8000 talents. He then fined the city in
500 more; and leaving L. Varus there with a strong
garrison to exact the fine without any abatement, he
returned to the continent.

After the death of Cassius, Marc Antony restored
the Rhodians to their ancient rights and privileges;
bestowing upon them the islands of Andros, Naxos,
Tenos, and the city of Myndus. But these the Rho-
dians, so oppressed and loaded with taxes, that the same
Antony, though a great friend to the Rhodian repub-
lic, was obliged to divest her of the sovereignty over
those places, which he had a little before so liberally
bestowed upon her. From this time to the reign of the
Emperor Claudius we find no mention made of the
Rhodians. That prince, as Dion informs us, deprived
them of their liberty for having crucified some Roman
citizens. However, he soon restored them to their for-
mer condition, as we read in Suetonius and Tacitus.
The latter adds, that they had been as often deprived
of, as restored to, their liberty, by way of punishment
or reward for their different behaviour, as they had ob-
liged the Romans with their assistance in foreign wars,
or provoked them with their seditions at home. Pliny,
who wrote in the beginning of Vespasian's reign, styles
Rhodes a beautiful and free town. But this liberty they
did not long enjoy, the island being soon after reduced
by the same Vespasian to a Roman province, and obli-
ged to pay a yearly tribute to their new masters. This
province was called the province of the islands. The Ro-
man prætor who governed it resided at Rhodes, as the
chief city under his jurisdiction; and Rome, notwith-
standing the eminent services rendered her by this re-
public, thenceforth treated the Rhodians not as allies,
but vassals.

29
Who takes
and cruelly
illages the
city.
The island of Rhodes continued subject to the Ro-
mans till the reign of the emperor Andronicus; when
Villaret, grand-master of the knights of Jerusalem, then
residing in Cyprus, finding himself much exposed to
the attacks of the Saracens in that island, resolved to
exchange it for that of Rhodes. This island too was
almost
Rhodes.
30
Rhodes re-
duced to a
Roman
province by
Vespasian.
31
Expedi-
tions of
Villaret
grand-ma-
ster of the
knights of
Jerusalem
against
Rhodes.

Rhodes.

32
He conquers the Saracens, and reduces the island.

33
The city besieged by Solyman.

almost entirely occupied by the Saracens; Andronicus the eastern emperor possessing little more in it than a castle. Nevertheless he refused to grant the investiture of the island to Villaret. The latter, without spending time in fruitless negotiations, sailed directly for Rhodes, where he landed his troops, provisions, and warlike stores, in spite of the opposition made by the Saracens, who then united against the common enemy. As Villaret foresaw that the capital must be taken before he could reduce the island, he instantly laid siege to it. The inhabitants defended themselves obstinately, upon which the grand-master thought proper to turn the siege into a blockade; but he soon found himself so closely surrounded by the Greeks and Saracens, that he could get no supply either of forage or provisions for his army. But having at length obtained a supply of provisions by means of large sums borrowed of the Florentines, he came out of his trenches and attacked the Saracens, with a full resolution either to conquer or die. A bloody fight ensued, in which a great number of the bravest knights were killed: but at length the Saracens gave way, and fled to their ships; upon which the city was immediately assaulted and taken. The Greeks and other Christians had their lives and liberties given them, but the Saracens were all cut to pieces. The reduction of the capital was followed by that of all the other places of inferior strength throughout the island; and in four years after their landing, the whole was subjugated, and the conquerors took the title of the *Knights of Rhodes*. For many years those knights continued the terror of the Saracens and Turks, and sustained a severe siege from Mohammed II. who was compelled to abandon the enterprise; but at length the Turkish sultan Solyman resolved at all events to drive them from it. Before he undertook the expedition, he sent a message commanding them to depart the island without delay; in which case he promised that neither they nor the inhabitants should suffer any injury, but threatened them with his utmost vengeance if they refused his offer. The knights, however, proving obstinate, Solyman attacked the city with a fleet of 400 sail and an army of 140,000 men.

The trenches were soon brought close to the counter-carp, and a strong battery raised against the town; which, however, did but little damage, till the sultan being informed by a spy of this particular, and that he was in danger of receiving some fatal shot from the tower of St John which overlooked his camp, he planted a battery against that tower, and quickly brought it down. Solyman, however, finding the whole place in some measure covered with strong fortifications of such height as to command all his batteries, ordered an immense quantity of stones and earth to be brought; in which so great a number of hands were employed night and day by turns, that they quickly raised a couple of hillocks high enough to overtop the city-walls. They plied them accordingly with such a continual fire, that the grand-master was obliged to cause them to be strongly propped within with earth and timber. All this while the besieged, who, from the top of the grand-master's palace, could discover how their batteries were planted, demolished them with their cannon almost as fast as they raised them.

Here the enemy thought proper to alter their measures, and to plant a strong battery against the tower of

St Nicholas, which, in the former siege by Mohammed, had resisted all the efforts of the then grand-vizier. This the bathaw of Romania caused to be battered with 12 large pieces of brass cannon, but had the mortification to see them all dismounted by those of the tower; to prevent which in future, he ordered them to be fired only in the night, and in the day had them covered with gabions and earth. This had such success, that, after 500 cannon-shot, the wall began to shake and tumble into the ditch; but he was surprised to find another wall behind it, well terraced, and bordered with artillery, and himself obliged either to begin afresh or give up the enterprise: and yet this last was what Solyman preferred, when he was told of its being built on a hard rock, incapable of being fapped, and how firmly it had held out against all the efforts of Mohammed's vizier. The next attack was therefore ordered by him to be made against the bastions of the town, and that with a vast number of the largest artillery, which continued firing during a whole month; so that the new wall of the bastion of England was quite demolished, though the old one stood proof against all their shot. That of Italy, which was battered by 17 large pieces of cannon, was still worse damaged; upon which Martinengo the engineer advised the grand-master to cause a sally to be made on the trenches of the enemy out of the breach, whilst he was making fresh entrenchments behind it. His advice succeeded; and the 200 men that sallied out sword in hand having surprised the Turks in the trench, cut most of them in pieces. At the same time a new detachment, which was sent to repulse them, being obliged, as that engineer rightly judged, to pass by a spot which lay open to their artillery, were likewise mostly destroyed by the continual fire that came from it, whilst the assailants were employed in filling up several fathoms of the trench before they retired. By that time the breach had been repaired with such new works, that all the efforts to mount it by assault proved equally ineffectual and destructive.

Unfortunately for the besieged, the continual fire they had made caused such a consumption of their powder, that they began to feel the want of it; the perfidious d'Amaral, whose province it had been to visit the magazines of it, having amused the council with a false report, that there was more than sufficient to maintain the siege, though it should last a whole twelve-month. But here the grand-master found means to supply in some measure that unexpected defect, by the cautious provision he had made of a large quantity of saltpetre, which was immediately ground and made into gunpowder, though he was at the same time obliged to order the engineers to be more sparing of it for the future, and to make use of it only in the defence of such breaches as the enemy should make.

All this while the Turks had not gained an inch of ground; and the breaches they had made were so suddenly either repaired or defended by new entrenchments, that the very rubbish of them must be mounted by assault. Solyman, therefore, thought it now advisable to set his numerous pioneers at work, in five different parts, in digging of mines, each of which led to the bastion opposite to it. Some of these were countermined by a new invented method of Martinengo; who, by the help of braced skins, or drums, could discover where

34
Terribly battered.

35
The besieged wanted powder, but find means to supply the defect.

36
Desperate encounters in mines.

where the miners were at work. Some of these he perceived, which he caused to be opened, and the miners to be driven out by hand grenades; others to be smothered, or burned, by setting fire to gunpowder. Yet did not this hinder two considerable ones to be sprung, which did a vast deal of damage to the bastion of England, by throwing down about six fathoms of the wall, and filling up the ditch with its rubbish: whereupon the Turks immediately climbed up sword in hand to the top of it, and planted seven of their standards upon the parapet; but being stopped by a traverse, the knights, recovering from their surprise, fell upon them with such fury, that they were obliged to abandon it with great loss. The grand-master, who was then at church, quickly came to the place with his short pike in his hand, attended by his knights, encouraging all he met with, burghers, soldiers, and others, to fight bravely in defence of their religion and country, and arrived time enough to assist in the taking down their standards, and driving down the enemy by the way they came up. In vain did the vizier Mustapha endeavour to prevent their flight by killing some of the foremost with his sword, and driving the rest back; they were obliged to abandon the bastion, and, which was still worse, met with that death in their flight, which they had strove to shun from the fire-arms which were discharged upon them from the ramparts. Three fangiacs lost their lives in this attack, besides some thousands of the Turks; the grand-master, on his side, lost some of his bravest knights, particularly his standard-bearer.

The attacks were almost daily renewed with the same ill success and loss of men, every general striving to signalize himself in the fight of their emperor. At length the old general Peri, or Pyrrus, having harassed the troops which guarded the bastion of Italy for several days successively without intermission, caused a strong detachment, which he had kept concealed behind a cavalier, to mount the place by break of day, on the 13th of September; where, finding them overcome with sleep and fatigue, they cut the throats of the sentinels, and, sliding through the breach, were just going to fall upon them. The Italians, however, quickly recovered themselves and their arms, and gave them an obstinate repulse. The contest was fierce and bloody on both sides; and the bashaw, still supplying his own with new reinforcements, would hardly have failed of overpowering the other, had not the grand-master, whom the alarm had quickly reached, timely intervened, and, by his presence, as well as example, revived his Rhodians, and thrown a sudden panic among the enemy. Pyrrus, desirous to do something to wipe off the disgrace of this repulse, tried his fortune next on an adjoining work, lately raised by the grand-master Caretti: but here his soldiers met with a still worse treatment, being almost overwhelmed with the hand-grenades, melted pitch, and boiling oil, which came pouring upon them, whilst the forces which were on the adjacent flanks made as great a slaughter of those that fled; insomuch that the janissaries began to resume their old murmuring tone, and cry out that they were brought thither only to be slaughtered.

The grand vizier Mustapha, afraid lest their complaints should reach his master, agreed at length, as the last resort, to make a fresh attempt on the

of England, whilst, to cause a diversion, the bashaw Ahmed sprung some fresh mines at an opposite part of the city. This was accordingly executed on the 17th of September; when the former, at the head of five battalions, resolutely mounted or rather crept up the breach, and, in spite of the fire of the English, advanced so far as to pitch some standards on the top; when, on a sudden, a crowd of English knights, commanded by one Bouk, or Burk, sallied out of their entrenchments, and, assisted by some other officers of distinction, obliged them to retire, though in good order, Mustapha, provoked at it, led them back, and killed several knights with his own hand; and had his men supported him as they ought, the place must have been yielded to him: but the fire which was made from the adjacent batteries and musketry disconcerted them to such a degree, that neither threats nor entreaties could prevent their abandoning the enterprise, and dragging him away with them by main force. The Rhodians lost in that action several brave knights, both English and German; and, in particular, John Burk, their valiant commander: but the Turks lost above 3000 men, besides many officers of distinction. Much the same ill success having attended Ahmed with his mines, one of which had been opened, and the other only bringing some fathoms of the wall down, he was also obliged to retreat; his troops, though some of the very best, being forced to disperse themselves, after having borne the fire and fury of the Spanish and Auvergnian knights as long as they were able.

By this time Solyman, ashamed and exasperated at his ill success, called a general council; in which he made some stinging reflections on his vizier, for having represented the reduction of Rhodes as a very easy enterprise. To avoid the effects of the sultan's resentment, the subtle Mustapha declared, that hitherto they had fought the enemy as it were upon equal terms, as if they had been afraid of taking an ungenerous advantage of their superiority, by which, said he, we have given them an opportunity of opposing us with their united force wherever we attacked them. But let us now resolve upon a general assault on several sides of the town; and see what a poor defence their strength, thus divided, will be able to make against our united force. The advice was immediately approved by all, and the time appointed for the execution of it was on the 24th of that month, and every thing was ordered to be got ready against that day. Accordingly the town was actually assaulted at four different parts, after having suffered a continual fire for some time from their artillery in order to widen the breaches; by which the grand-master easily understood their design, and that the bastions of England and Spain, the post of Provence, and terrace of Italy, were pitched upon for the assault, and took his precautions accordingly.

The morning was no sooner come, than each party mounted their respective breach with an undaunted bravery, the young sultan, to animate them the more, having ordered his throne to be reared on an eminence, whence he could see all that was done. The Rhodians, on the other hand, were no less diligent in repulsing them with their cannon and other fire-arms, with their melted lead, boiling oil, stink-pots, and other usual expedients. The one side ascend the scaling ladders, fearless of all that opposed them; the other overturn their

Rhodes.

37
An assault
in four dif-
ferent
places at
once.

Rhodes. their ladders and send them tumbling down headlong into the ditches, where they were overwhelmed with stones, or dispatched with darts and other missile weapons. The bastion of England proves the scene of the greatest slaughter and bloodshed; and the grand-master makes that his post of honour, and, by his presence and example, inspires his men with fresh vigour and bravery, whilst the continual thunder of his artillery makes such horrid work among the assailants as chills all their courage, and forces them to give way: the lieutenant-general, who commands the attack, leads them back with fresh vigour, and mounts the breach at the head of all; immediately after comes a cannon-ball from the Spanish bastion, which overturns him dead into the ditch. This disaster, instead of fear and dread, fills them with a furious desire of revenging his death: but all their obstinacy cannot make the Rhodians go one step back, whilst the priests, monks, young men and old, and even women of every rank and age, assist them with an uncommon ardour and firmness; some in overwhelming the enemy with stones; others in destroying them with melted lead, sulphur, and other combustibles; and a third sort in supplying the combatants with bread, wine, and other refreshments.

The assault was no less desperate and bloody on the bastion of Spain, where the knights, who guarded it, not expecting to be so soon attacked, and ashamed to stand idle, were assisting the bastion of Italy; which gave the Turks an opportunity to mount the breach, and penetrate as far as their intrenchments, where they planted no less than 30 of their standards on them. The grand-master was quickly apprised of it, and ordered the bastion of Auvergne to play against them; which was done with such diligence, and such continual fire, whilst the Rhodians enter the bastion by the help of their casemates, and, sword in hand, fall upon them with equal fury, that the Turks, alike beset by the fire of the artillery and the arms of the Rhodian knights, were forced to abandon the place with a considerable loss. The aga with great bravery rallies them afresh, and brings them back, by which time the grand-master likewise appeared. The fight was renewed with greater fierceness; and such slaughter was made on both sides, that the grand-master was obliged to draw 200 men out of St Nicholas tower to his assistance: these were commanded by some Roman knights, who led them on with such speed and bravery, that their very appearance on the bastion made the janissaries draw back; which Solymán observing from his eminence, caused a retreat to be sounded, to conceal the disgrace of their flight. In these attacks there fell about 15,000 of his best troops, besides several officers of distinction. The loss of the besieged was no less considerable, if we judge from the small number of their forces; but the greatest of all to them was that of some of their bravest and most distinguished knights and commanders, many of whom were killed, and scarce any escaped unwounded. But the most dreadful fate of all had like to have fallen on the favourite vizier Mustapha, who had proposed this general assault: the ill success of which had so enraged the proud sultan, that he condemned him to be shot with arrows at the head of his army; which dreadful sentence was just ready to be executed, when the old bashaw, by his intreaties, obtained a suspension

of it, in hopes that, when his fury was abated, he should also obtain his pardon.

Solymán, however, was so discouraged by his ill success, that he was on the point of raising the siege, and would have actually done so, had he not been diverted from it by the advice which he received from an Albanian deserter, some say by a letter from the traitor d'Amarald, that the far greater part of the knights were either killed or wounded, and those that remained altogether incapable of sustaining a fresh assault. This having determined him to try his fortune once more, the command of his forces was turned over to the bashaw Achmed; and, to show that he designed not to stir till he was master of the place, he ordered a house to be built on the adjacent mount Philermo for his winter-quarters. Achmed marched directly against the bastion of Spain, which had suffered the most; where, before he could open the trenches, his men fell thick and threefold by the constant fire both of small and great guns from the bastion of Auvergne. He lost still a much greater number in rearing a rampart of earth to cover the attack, and give him an opportunity of lapping the wall; and, as soon as he saw a large piece fall, ordered his men to mount the breach. They were no sooner come to the top, than they found a new work and intrenchments which Martinengo had reared; and there they were welcomed with such a brisk fire from the artillery, that they were glad to recover their trenches with the utmost precipitation, after having lost the much greater part of their men. The attack was renewed, and a reciprocal fire continued with great obstinacy, till a musket-shot deprived that indefatigable engineer of one of his eyes, and the order of his assiduous services for some time. The grand-master, having ordered him to be carried to his palace, took his place, and kept it till he was quite cured, which was not till 34 days after; and continued all the time in the intrenchments with his handful of knights, scarcely allowing himself rest night or day, and ever ready to expose himself to the greatest dangers, with an ardour more becoming a junior officer than an old worn-out sovereign; which made his knights more lavish of their own lives than their paucity and present circumstances could well admit of.

Soon after this, the treason of D'Amarald was discovered, and he was condemned to death and executed; but by this time the city was reduced to the last extremity. The pope, emperor, and other crowned heads, had been long and often importuned by the grand-master for speedy assistance, without success; and, as an addition to all the other disasters, those succours which were sent to him from France and England perished at sea. The new supply which he had sent for of provisions from Candia had the same ill fate; so that the winds, seas, and every thing, seemed combined to bring on the destruction of that city and order. The only resource which could be thought of, under so dismal a situation, was, to send for the few remaining knights and forces which were left to guard the other islands, to come to the defence of their capital, in hopes that, if they could save this, the others might in time be recovered, in case the Turks should seize upon them. On the other hand, Solymán, grown impatient at the small ground his general had gained, gave him express orders to renew the attack with all imaginable speed

and vigour, before the succours which he apprehended were coming from Europe, obliged him to raise the siege. Achmed instantly obeyed, raised a battery of 17 large cannon against the bastion of Italy, and quickly after made himself master of it, obliging the garrison to retire farther into the city. Here the grand-master was forced to demolish two of the churches, to prevent the enemy's seizing on them; and, with their materials, caused some new works and entrenchments to be made to hinder their proceeding farther.

The Turks, however, gained ground every day, though they still lost vast numbers of their men: at length the 30th of November came, when the grand-master, and both the besiegers and besieged, thought the last assault was to be given. The bashaw Pyrrus, who commanded it, led his men directly to the entrenchments; upon which the bells of all the churches sounded the alarm. The grand-master, and his few knights, troops, and citizens, ran in crowds, and in a confused disorderly manner, to the entrenchments, each fighting in his own way, or rather as his fear directed him. This attack would have proved one of the most desperate that had yet been felt, had not a most vehement rain intervened, which carried away all the earth which the enemy had reared to serve them as a rampart against the artillery of the bastion of Auvergne; so that being now quite exposed to their continual fire, they fell in such great numbers, that the bashaw could no longer make them stand their ground, but all precipitately fled towards their camp. This last repulse threw the proud sultan into such a fury, that none of his officers dared to come near him; and the shame of his having now spent near six whole months with such a numerous army before the place, and having lost such myriads of his brave troops with so little advantage, had made him quite desperate, and they all dreaded the consequences of his resentment.

Pyrrus at length, having given it time to cool, ventured to approach him, and propose a new project to him, which, if approved, could hardly fail of success; which was, to offer the town a generous capitulation; and he observed, that in case the stubborn knights should reject it, yet being now reduced to so small a number, as well as their forces and fortifications almost destroyed, the citizens, who were most of them Greeks, and less ambitious of glory than solicitous for their own preservation, would undoubtedly accept of any composition that should secure to them their lives and effects.

This proposal being relished by the sultan, letters were immediately dispersed about the city in his name, exhorting them to submit to his government, and threatening them at the same time with the most dreadful effects of his resentment if they persisted in their obstinacy. Pyrrus likewise dispatched a Genoese to approach as near as he could to the bastion of Auvergne, and to intreat the knights to take pity of so many of their Christian brethren, and not expose them to the dreadful effects which must follow their refusal of a capitulation, so generously offered them at their last extremity. Other agents were likewise employed in other places: to all of whom the grand-master ordered some of his men to return this answer, That his order never treated with infidels but with sword in hand. An Albanian was sent next with a letter from the sultan to him, who met with the same repulse;

after which, he ordered his men to fire upon any that should present themselves upon the same pretence; which was actually done. But this did not prevent the Rhodians from listening to the terms offered by the Turks, and holding frequent cabals upon that subject; in which the general massacre of a town taken by assault, the dreadful slavery of those that escaped, the rape of their wives and daughters, the destruction of their churches, the profanation of their holy relics and sacred utensils, and other dire consequences of an obstinate refusal, being duly weighed against the sultan's offers, quickly determined them which party to take. The grand-master, however, proving inexorable to all their intreaties, they applied to their Greek metropolitan, who readily went and represented all these things to him in the most pathetic terms: Yet he met with no better reception; but was told, that he and his knights were determined to be buried under the ruins of the city if their swords could no longer defend it, and he hoped their example would not permit them to show less courage on that occasion. This answer produced a quite contrary effect; and, as the citizens thought delays dangerous at such a juncture, they came in a body to him by the very next morning, and plainly told him, that if he paid no greater regard to their preservation, they would not fail of taking the most proper measures to preserve the lives and chastity of their wives and children.

This resolution could not but greatly alarm the grand-master; who, thereupon called a council of all the knights, and informed them himself of the condition of the place. These all agreed, particularly the engineer Martinengo, that it was no longer defensible, and no other resource left but to accept the sultan's offers; adding, at the same time, that though they were all ready, according to the obligations of their order, to fight to the last drop of their blood, yet it was no less their duty to provide for the safety of the inhabitants, who, not being bound by the same obligations, ought not to be made a sacrifice to their glory. It was therefore agreed, with the grand-master's consent, to accept of the next offers the sultan should make. He did not let them wait long: for the fear he was in of a fresh succour from Europe, the intrepidity of the knights, and the shame of being forced to raise the siege, prevailed upon him to hang out his pacific flag, which was quickly answered by another on the Rhodian side; upon which the Turks, coming out of their trenches, delivered up the sultan's letter for the grand-master, to the grand-prior of St Giles, and the engineer Martinengo. The terms offered in it by Solyman appeared so advantageous, that they immediately exchanged hostages; and the knights that were sent to him had the honour to be introduced to him, and to hear them confirmed by his own mouth, though not without threats of putting all to fire and sword in case of refusal, or even delay. Two ambassadors were forthwith sent to him, to demand a truce of three days to settle the capitulation and interests of the inhabitants, who were part Greeks and part Latins; but this was absolutely refused by the impatient monarch, out of a suspicion of the rumoured succour being near, and that the truce was only to gain time till it was come.

He therefore ordered the hostilities to be renewed

Rhodes.

with fresh fury; in which the Rhodians made a most noble defence, considering their small number, and that they had now only the barbican or false bray of the bastion of Spain left to defend themselves, and once more repulsed the enemy: at which the sultan was so enraged, that he resolved to overpower them by numbers on the next day; which was, after a stout defence, so effectually done, that they were forced to abandon that outwork, and retire into the city. In the meanwhile, the burghers, who had but a day or two before raised a fresh uproar against the grand-master, under pretence that he was going to give them up a prey to an infidel who regarded neither oaths nor solemn treaties, perceiving their own danger, came now to desire him to renew the negotiations, and only begged the liberty of sending one of their deputies along with him, to secure their interests in the capitulation. He readily consented to it; but gave them a charge to show the bashaw Achmed the treaty formerly concluded between Bajazet and his predecessor d'Aubuffon, in which the former had entailed a dreadful curse on any of his successors that should infringe it. This was done, in hopes that the showing it to his master, who valued himself so much upon his strict observance of his law, might produce some qualm in him which might lengthen the agreement, for they were still as much in hopes of a succour from Europe as he was in fear of it; but to their great surprise, Achmed had no sooner perused than he tore it all in pieces, trampled it under his feet, and in a rage ordered them to be gone. The grand-master found no other resource than to send them back to him the next day; when that minister, who knew his master's impatience to have the affair concluded, quickly agreed with them upon the terms, which were in substance as follow:

1. That the churches should not be profaned.
2. That the inhabitants should not be forced to part with their children to be made janissaries.
3. That they should enjoy the free exercise of their religion.
4. That they should be free from taxes during five years.
5. That those who had a mind to leave the island should have free leave to do so.
6. That if the grand-master and his knights had not a sufficient number of vessels to transport themselves and their effects into Candia, the sultan should supply that defect.
7. That they should have 12 days allowed them, from the signing of the articles, to send all their effects on board.
8. That they should have the liberty of carrying away their relics, chalices, and other sacred utensils belonging to the great church of St John, together with all their ornaments and other effects.
9. That they should likewise carry with them all the artillery with which they were wont to arm the galleys of the order.
10. That the islands belonging to it, together with the castle of St Peter, should be delivered up to the Turks.
11. That, for the more easy execution of these articles, the Turkish army should be removed at some miles distance from the capital.
12. That the aga of the janissaries, at the head of 4000 of his men, should be allowed to go and take possession of the place.

From this time the island of Rhodes has been subject to the Turks; and, like other countries subject to that tyrannical yoke, has lost its former importance. The air is good, and the soil fertile, but ill cultivated. The capital is surrounded with triple walls and double

ditches, and is looked upon to be impregnable. It is inhabited by Turks and Jews; the Christians being obliged to occupy the suburbs, as not being allowed to stay in the town during the night. The town is situated in E. Long. 28. 25. N. Lat. 36. 54.

RHODIOLA, ROSE-WORT, in botany: A genus of the octandria order, belonging to the diœcia class of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The male calyx is quadripartite; the corolla tetrapetalous. The female calyx is quadripartite, and there is no corolla; the nectaria are four; the pistils four; and there are four polyspermous capsules. There are two species, the rosea and the minor: the first grows naturally in the clefts of the rocks and rugged mountains of Wales, Yorkshire, and Westmoreland. It has a very thick fleshy root, which when cut or bruised sends out an odour like roses. It has thick succulent stalks, like those of orpine, about nine inches long, closely garnished with thick succulent leaves indented at the top. The stalk is terminated by a cluster of yellowish herbaceous flowers, which have an agreeable scent, but are of short continuance. The second sort is a native of the Alps, and has purplish flowers which come out later than the former; it is also of a smaller size. Both species are easily propagated by parting their roots; and require a shady situation, and dry undunged soil. The fragrance of the first species, however, is greatly diminished by cultivation.

OIL OF RHODIUM. See **ASPALATHUS**.

RHODODENDRON, DWARF ROSE-BAY, in botany: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking under the 18th order, *Bicornes*. The calyx is quinquepartite; the corolla funnel-shaped; the stamina declining; the capsule quinquelocular. There are seven species: the most remarkable of which are,

1. The hirsutum, with naked hairy leaves, grows naturally on the Alps and several mountains of Italy. It is a low shrub, which seldom rises two feet high, sending out many ligneous branches covered with a light-brown bark, garnished closely with oval spear-shaped leaves, sitting pretty close to the branches. They are entire, having a great number of fine iron-coloured hairs on their edges and underside. The flowers are produced in bunches at the end of the branches in May, having one funnel-shaped petal cut into five obtuse segments, and of a pale-red colour. They make a good show, and are succeeded by oval capsules, containing ripe seeds in August.
2. The ferrugineum, with smooth leaves, hairy on their underside, is a native of the Alps and Apennines. It rises with a shrubby stalk near three feet high, sending out many irregular branches covered with a purplish bark, and closely garnished with smooth spear-shaped entire leaves, whose borders are reflexed backward; the upper side is of a light lucid green, their under side of an iron-colour. The flowers are produced at the ends of the branches, are funnel-shaped, cut into five segments, and of a pale rose colour. These plants are propagated by seeds; but, being natives of barren rocky soils and cold situations, they do not thrive in gardens, and for want of their usual covering of snow in the winter are often killed by frost in this country.
3. The chamæcistus, or ciliated-leaved dwarf rose-bay, is a low deciduous shrub, native of Mount Baldus, and near Saltzburg, in Germany. It grows

grows to the height of about a yard; the branches are numerous, produced irregularly, and covered with a purplish bark. The leaves are oval, spear-shaped, small, and in the under surface of the colour of iron. The flowers are produced at the end of the branches in bunches, are of a wheel-shaped figure, pretty large, of a fine crimson colour, and handsome appearance. They appear in June, and are succeeded by oval capsules containing ripe seeds in September. 4. The Dauricum, or Daurian dwarf rose-bay, is a low deciduous shrub, and native of Dauria. Its branches are numerous, and covered with a brownish bark. The flowers are wheel-shaped, large, and of a beautiful rose-colour: they appear in May, and are succeeded by oval capsules full of seeds, which in England do not always ripen. 5. The maximum, or American mountain laurel, is an evergreen shrub, and native of Virginia, where it grows naturally on the highest mountains, and on the edges of cliffs, precipices, &c. where it reaches the size of a moderate tree, though with us it seldom rises higher than six feet. The flowers continue by succession sometimes more than two months, and are succeeded by oval capsules full of seeds. 6. The Ponticum, or Pontic dwarf rose-bay, is an evergreen shrub, native of the east, and of most shady places near Gibraltar. It grows to the height of four or five feet. The leaves are spear-shaped, glossy on both sides, acute, and placed on short footstalks on the branches: the flowers, which are produced in clusters, are bell-shaped, and of a fine purple colour. They appear in July, and are succeeded by oval capsules containing seeds, which in England seldom attain to maturity.

In Siberia, a species of this plant is used with great success in gouty and rheumatic affections; of which the following account is given in the 5th volume of the Medical Commentaries, p. 434. in a letter from Dr Guthrie of Petersburg to Dr Duncan of Edinburgh. "It is the *rhododendrum chrysanthemum*, nova species, belonging to the class of decandria, discovered by Professor Pallas in his tour through Siberia. This Alpine shrub grows near the tops of the high mountains named *Sajanes*, in the neighbourhood of the river Jenise in Siberia; and delights in the skirts of the snow-covered summits, above the region that produces trees. When the inhabitants of that country mean to exhibit it in arthritic or rheumatic disorders, they take about two drams of the dried shrub, stalk and leaves, with nine or ten ounces of boiling water, and putting them into an earthen pot, they lute on the head, and place them in an oven during the night. This infusion (for it is not allowed to boil) the sick man drinks next morning for a dose. It occasions heat, together with a degree of intoxication, resembling the effects of spirituous liquors, and a singular kind of uneasy sensation in the parts affected, accompanied with a sort of vermiculation, which is likewise confined to the diseased parts. The patient is not permitted to quench the thirst which this medicine occasions; as fluids, particularly cold water, produce vomiting, which lessens the power of the specific. In a few hours, however, all the disagreeable effects of the dose disappear, commonly with two or three stools. The patient then finds himself greatly relieved of his disorder; and has seldom occasion to repeat the medicine above two or three times to complete a cure. The inhabitants of Siberia call this shrub *chei* or

tea, from their drinking, in common, a weak infusion of it, as we do the Chinese plant of that name. This practice shows that the plant, used in small quantities, must be innocent. Professor Pallas informs me, that he sent some time ago some of this shrub dried to Professor Koelpin at Stetin; and he showed me a letter from that gentleman, where he says, that he has given it with success in several cases, particularly in what he calls the *arthritica venerea*, with a tophus arthriticus on the carpus, and it produced a complete cure. It must be remarked, that the dose which these hardy Siberians take, who are also in the habit of drinking it as tea, would, in all probability, be too strong for our countrymen; however, it is a medicine which we may certainly give with safety, beginning with small doses."

RHŒA. See RHEA.

RHŒADEÆ (*rhœas*, Linnæus's name, after Dioscorides, for the red poppy), the name of the 27th order in Linnæus's fragments of a natural method, consisting of poppy and a few genera which resemble it in habit and structure. See BOTANY, p. 462.

RHOMBOIDES, in geometry, a quadrilateral figure whose opposite sides and angles are equal, but is neither equilateral nor equiangular.

RHOMBOIDES, in anatomy, a thin, broad, and obliquely square fleshy muscle, situated between the basis of the scapula and the spina dorsi; so called from its figure. Its general use is to draw backward and upward the subspinal portion of the basis scapulæ.

RHOMBUS, in geometry, an oblique-angled parallelogram, or quadrilateral figure, whose sides are equal and parallel, but the angles unequal, two of the opposite ones being obtuse and two acute.

RHONE, one of the largest rivers in France, which, rising among the Alps of Switzerland, passes through the lake of Geneva, visits that city, and then runs south-west to Lyons; where, joining the river Soane, it continues its course due south, passing by Orange, Avignon, and Arles, and falls into the Mediterranean a little above Marseilles.

RHOPIUM, in botany: A genus of the triandria order, belonging to the gynandria class of plants; and in the natural method ranking with those that are doubtful. The calyx is monophyllous and sexpartite; there is no corolla nor any stamina; the three antheræ are each attached to one of the styli; the capsule is trilocular and sexlocular, each containing two seeds. There is only one species, *viz.* the *meborea*, a native of Guiana. This is a shrub rising about three or four feet in height. The flowers grow in the form of a corymbus; they are of a yellowish green colour; the capsules are black.

RHOPOLA, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking with those that are doubtful. There is no calyx; the petals are four, oblong, obtuse, and narrowing at the base; the stamina are four, inserted in the corolla, and have large antheræ; the seed-vessel unilocular, and contains one seed. There is only one species, *viz.* the *montana*. This is a shrubby plant growing in Guiana, and remarkable for the great number of branches sent off from its trunk in every direction, and for the fetid smell of the wood and bark of this plant.

Rhœa
||
Rhopola.

Rhubarb

Rhus.

RHUBARB. See RHEUM.

RHUMB, in navigation, a vertical circle of any given place, or intersection of such a circle with the horizon; in which last sense rhumb is the same with a point of the compass.

RHUMB-Line is also used for the line which a ship describes when sailing in the same collateral point of the compass, or oblique to the meridians.

RHUS, **SUMACH**, in botany: A genus of the trigynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 43d order, *Dumosa*. The calyx is quinquepartite; the petals five; the berry monospermous. There are 24 species, of which the most remarkable are,

1. The coriaria, or elm-leaved sumach, grows naturally in Italy, Spain, Turkey, Syria, and Palestine. The branches of this tree are used instead of oak-bark for tanning of leather; and it is said that the Turkey leather is all tanned with this shrub. It has a ligneous stalk, which divides at bottom into many irregular branches, rising to the height of eight or ten feet; the bark is hairy, of an herbaceous brown colour; the leaves are winged, composed of seven or eight pair of lobes, terminated by an odd one, bluntly sawed on their edges, hairy on their under side, of a yellowish-green colour, and placed alternately on the branches; the flowers grow in loose panicles on the end of the branches, which are of a whitish herbaceous colour, each panicle being composed of several spikes of flowers sitting close to the footstalks. The leaves and seeds of this sort are used in medicine, and are esteemed very restringent and stiptic.

2. The typhinum, Virginian sumach, or vinegar plant, grows naturally in almost every part of North America. This hath a woody stem, with many irregular branches, which are generally crooked and deformed. The young branches are covered with a soft velvet-like down, resembling greatly that of a young stag's horn, both in colour and texture, from whence the common people have given it the appellation of *stag's horn*; the leaves are winged, composed of six or seven pair of oblong heart-shaped lobes, terminated by an odd one, ending in acute points, hairy on their under side, as is also the midrib. The flowers are produced in close tufts at the end of the branches, and are succeeded by seeds, inclosed in purple woolly succulent covers; so that the bunches are of a beautiful purple colour in autumn; and the leaves, before they fall in autumn, change to a purplish colour at first, and before they fall to a feuile-mort. This plant, originally a native of North America, has been long cultivated in the north of Germany, and is lately introduced into Russia. It has got the name of the *vinegar plant* from the double reason of the young germen of its fruit, when fermented, producing either new or adding to the strength of old weak vinegar, whilst its ripe berries afford an agreeable acid, which might supply the place when necessary of the citric acid. The powerful astringency of this plant in all its parts recommends it as useful in several of the arts. As for example, the ripe berries boiled with alum make a good dye for hats. The plant in all its parts may be used as a succedaneum for oak-bark in tanning, especially the white glove leather. It will likewise answer to prepare a dye for black, green, and yellow colours; and with martial vitriol it makes a good ink. The milky juice

that flows from incisions made in the trunk or branches, makes when dried the basis of a varnish little inferior to the Chinese. Bees are remarkably fond of its flowers; and it affords more honey than any of the flowering shrubs, so that it may prove a useful branch of economy, where rearing these insects is an object. The natives of America use the dried leaves as tobacco.

3. The glabrum, with winged leaves, grows naturally in many parts of North America; this is commonly titled by the gardeners *New England sumach*. The stem of this is stronger and rises higher than that of the former; the branches spread more horizontally; they are not quite so downy as those of the last, and the down is of a brownish colour; the leaves are composed of many more pair of lobes, which are smooth on both sides; the flowers are disposed in loose panicles, which are of an herbaceous colour.

4. The Carolinianum, with sawed winged leaves, grows naturally in Carolina; the seeds of this were brought from thence by the late Mr Catesby, who has given a figure of the plant in his Natural History of Carolina. This is by the gardeners called the *scarlet Carolina sumach*; it rises commonly to the height of seven or eight feet, dividing into many irregular branches, which are smooth, of a purple colour, and pounced over with a greyish powder, as are also the footstalks of the leaves. The leaves are composed of seven or eight pair of lobes, terminated by an odd one; these are not always placed exactly opposite on the midrib, but are sometimes alternate. The upper side of the lobes are of a dark green, and their under hoary, but smooth. The flowers are produced at the end of the branches in very close panicles, which are large, and of a bright red colour.

5. The Canadense, with winged spear-shaped leaves, grows naturally in Canada, Maryland, and several other parts of North America. This hath smooth branches of a purple colour, covered with a grey pounce. The leaves are composed of seven or eight pair of lobes, terminated by an odd one; the lobes are spear-shaped, sawed on their edges, of a lucid green on their upper surface, but hoary on their under, and are smooth. The flowers are produced at the end of the branches in large panicles, which are composed of several smaller, each standing upon separate footstalks; they are of a deep red colour, and the whole panicle is covered with a grey pounce, as if it had been scattered over them.

6. The copallinum, or narrow-leaved sumach, grows naturally in most parts of North America, where it is known by the title of *beach sumach*, probably from the place where it grows. This is of humbler growth than either of the former, seldom rising more than four or five feet high in Britain, dividing into many spreading branches, which are smooth, of a light brown colour, closely garnished with winged leaves, composed of four or five pair of narrow lobes, terminated by an odd one; they are of a light green on both sides, and in autumn change purplish. The midrib, which sustains the lobes, has on each side a winged or leafy border, which runs from one pair of lobes to another, ending in joints at each pair, by which it is easily distinguished from the other sorts. The flowers are produced in loose panicles at the end of the branches, of a yellowish herbaceous colour.

These

These six sorts are hardy plants, and will thrive in the open air here. The first and fourth sorts are not quite so hardy as the others, so must have a better situation, otherwise their branches will be injured by severe frost in the winter. They are easily propagated by seeds, which if sown in autumn the plants will come up the following spring; but if they are sown in spring, they will not come up till the next spring; they may be either sown in pots, or the full ground. If they are sown in pots in autumn, the pots should be placed under a common frame in winter, where the seeds may be protected from hard frost; and in the spring, if the pots are plunged into a very moderate hot-bed, the plants will soon rise, and have thereby more time to get strength before winter. When the plants come up, they must be gradually hardened to bear the open air, into which they should be removed as soon as the weather is favourable, placing them where they may have the morning sun; in the summer, they must be kept clean from weeds, and in dry weather watered. Toward autumn it will be proper to flint their growth by keeping them dry, that the extremity of their shoots may harden; for if they are replete with moisture, the early frosts in autumn will pinch them, which will cause their shoots to decay almost to the bottom if the plants are not screened from them. If the pots are put under a common frame in autumn, it will secure the plants from injury: for while they are young and the shoots soft, they will be in danger of suffering, if the winter proves very severe; but in mild weather they must always enjoy the open air, therefore should never be covered but in frost. The spring following, just before the plants begin to shoot, they should be shaken out of the pots, and carefully separated, so as not to tear the roots; and transplanted into a nursery, in rows three feet asunder, and one foot distance in the rows. In this nursery they may stand two years to get strength, and then may be transplanted where they are to remain.

7. Besides these, Linnaeus has included in this genus the toxicodendron or poison-tree, under the name of *Rhus vernix* or *poison-ash*. This grows naturally in Virginia, Pennsylvania, New England, Carolina, and Japan, rising with a strong woody stalk to the height of 20 feet and upwards; though in this country it is seldom seen above 12, by reason of the plants being extremely tender. The bark is brown, inclining to grey; the branches are garnished with winged leaves composed of three or four pair of lobes terminated by an odd one. The lobes vary greatly in their shape, but for the most part they are oval and spear-shaped. The footstalks become of a bright purple towards the latter part of summer, and in autumn all the leaves are of a beautiful purple before they fall off.

All the species of sumach abound with an acrid milky juice, which is reckoned poisonous; but this property is most remarkable in the vernix. The most distinct account of it is to be found in Professor Kalm's Travels in North America. "An incision (says he) being made into the tree, a whitish yellow juice, which has a nauseous smell, comes out between the bark and the wood. This tree is not known for its good qualities, but greatly so for the effect of its poison; which, tho' it is noxious to some people, yet does not in the least affect others. And therefore one person can handle the tree as he pleases, cut it, peel off its bark, rub it or

the wood upon his hands, smell at it, spread the juice upon his skin, and make more experiments, with no inconvenience to himself: another person, on the contrary, dares not meddle with the tree while its wood is fresh; nor can he venture to touch a hand which has handled it, nor even to expose himself to the smoke of a fire which is made with this wood, without soon feeling its bad effects; for the face, the hands, and frequently the whole body, swells excessively, and is affected with a very acute pain. Sometimes bladders or blisters arise in great plenty, and make the sick person look as if he was infected by a leprosy. In some people the external thin skin, or cuticle, peels off in a few days, as is the case when a person has scalded or burnt any part of his body. Nay, the nature of some persons will not even allow them to approach the place where the tree grows, or to expose themselves to the wind when it carries the effluvia or exhalations of this tree with it, without letting them feel the inconvenience of the swelling which I have just now described. Their eyes are sometimes shut up for one, or two, or more days together, by the swelling. I know two brothers, one of whom could without danger handle this tree in what manner he pleased, whereas the other could not come near it without swelling. A person sometimes does not know that he has touched this poisonous plant, or that he has been near it, before his face and hands show it by their swelling. I have known old people who were more afraid of this tree than of a viper; and I was acquainted with a person who, merely by the noxious exhalations of it, was swelled to such a degree, that he was as stiff as a log of wood, and could only be turned about in sheets.

"I have tried experiments of every kind with the poison-tree on myself. I have spread its juice upon my hands, cut and broke its branches, peeled off its bark, and rubbed my hands with it, smelt at it, carried pieces of it in my bare hands, and repeated all this frequently, without feeling the baneful effects so commonly annexed to it; but I, however, once experienced, that the poison of the sumach was not entirely without effect upon me. On a hot day in summer, as I was in some degree of perspiration, I cut a branch of the tree, and carried it in my hand for about half an hour together, and smelt at it now and then. I felt no effects from it in the evening. But next morning I awoke with a violent itching of my eye-lids and the parts thereabouts; and this was so painful, that I could hardly keep my hands from it. It ceased after I had washed my eyes for a while with very cold water. But my eye-lids were very stiff all that day. At night the itching returned; and in the morning when I awoke, I felt it as ill as the morning before, and I used the same remedy against it. However, it continued almost for a whole week together; and my eyes were very red, and my eye-lids were with difficulty moved during all that time. My pain ceased entirely afterwards. About the same time I had spread the juice of the tree very thick upon my hand. Three days after, they occasioned blisters, which soon went off without affecting me much. I have not experienced any thing more of the effects of this plant, nor had I any desire so to do. However, I found that it could not exert its power upon me when I was not perspiring.

"I have never heard that the poison of this sumach has

Rhus.

Rhyme
||
Riband.

has been mortal, but the pain ceases after a few days duration. The natives formerly made their flutes of this tree, because it has a great deal of pith. Some people assured me, that a person suffering from its noisome exhalations, would easily recover by spreading a mixture of the wood burnt to charcoal, and hog's lard, upon the swelled parts. Some asserted, that they had really tried this remedy. In some places this tree is rooted out, on purpose that its poison may not affect the workmen."

The natives are said to distinguish this tree in the dark by its extreme coldness to the touch. The juice of some kinds of fumach, when exposed to the heat of the sun, becomes so thick and clammy, that it is used for bird-lime, and the inspissated juice of the poison-ash is said to be the fine varnish of Japan. A cataplasm made with the fresh juice of the poison-ash, applied to the feet, is said by Hughes, in his Natural History of Barbadoes, to kill the vermin called by the West Indians *chigers*. Very good vinegar is made from an infusion of the fruit of an American fumach, which for that reason is called the *vinegar-tree*. The resin called *gum copal* is from the *rhus copallinum*. See *COPAL*.

RHYME, RHIME, *Ryme*, or *Rime*, in poetry, the similar sound or cadence and termination of two words which end two verses, &c. Or rhyme is a similitude of sound between the last syllable or syllables of a verse, succeeding either immediately or at a distance of two or three lines. See *POETRY*, n° 177, &c.

RHYMER (Thomas the), was a native of the parish of Earlstown, in the county of Berwick. His real name and title was Sir Thomas Lermont. He lived at the west end of Earlstown, where part of his house is still standing, called *Rhymer's Tower*; and there is a stone built in the fore wall of the church with this inscription on it,

Auld Rhymer's race lies in this place.

He lived in the 13th century, and was contemporary with one of the earls of March, who lived in the same place.

RHYTHM, in music, the variety in the movement, as to the quickness or slowness, length or shortness, of the notes. Or it may be defined more generally, the proportion which the parts of the motion have to each other.

RIAL, or RYAL, a Spanish coin. See *MONEY-Table*.

RIAL, or *Royal*, is also the name of a piece of gold anciently current among us for 10 s.

RIBAN, or RIBBAN, in heraldry, the eighth part of a bend. See *HERALDRY*, p. 447.

RIBAND, or RIBBON, a narrow sort of silk, chiefly used for head-ornaments, badges of chivalry, &c.

In order to give our readers an idea of the manner in which this curious and valuable branch of manufactures is managed, a view of the ribbon-weaver at his loom is represented in Plate CCCCXXXV. where, 1. Is the frame of the loom. 2. The castle, containing 48 pulleys. 3. The branches, on which the pulleys turn. 4. The tires, or the riding-cords, which run on the pulleys, and pull up the high-lisses. 5. The lift-sticks, to which the high-lisses are tied. 6. The high-lisses, or lifts, are a number of long threads, with platines, or plate-leads, at the bottom; and ringlets, or

loops, about their middle, through which the cords or cross-threads of the ground-harnes ride. 7. The plate-leads, or platines, are flat pieces of lead, of about six inches long, and three or four inches broad at the top, but round at the bottom; some use black slates instead of them: their use is to pull down those lisses which the workman had raised by the treddle, after his foot is taken off. 8. The branches or cords of the ground harnes, which go thro' the loops in the middle of the high-lisses: on the well-ordering of these cords chiefly depends the art of ribbon-weaving, because it is by means of this contrivance that the weaver draws in the thread or silk that makes the flower, and rejects or excludes the rest. 9. The batton: this is the wooden frame that holds the reed or shuttle, and beats or closes the work: where, observe, that the ribbon-weaver does not beat his work; but as soon as the shuttle is passed, and his hand is taken away, the batton is forced, by a spring from the top, to beat the work close. 10. The shuttle, or reed. 11. The spring of the batton, by which it is made to close the work. 12. The long-harnes are the front-reeds, by which the figure is raised. 13. The linguas are the long pieces of round or square lead, tied to the end of each thread of the long-harnes to keep them tight. 14. The broad piece of wood, about a foot square, leaning somewhat forward, intended to ease the weaver as he stoops to his shuttle; it is fixed in the middle of the breast-beam. Some weavers, instead of this, have a contrivance of a cord or rope that is fastened to the front-frame, and comes across his breast; this is called a *slopfall*. 15. The seat-bench; this leans forward very much. 16. The foot-step to the treddles. 17. The breast-beam, being a cross-bar that passes from one of the standards to the other, so as to front the workman's breast: to this breast-bar is fixed a roll, upon which the ribbon passes in its way to be rolled upon the roller, that turns a little below. 18. The clamps, or pieces of wood, in which the broaches that confine the treddles rest. 19. The treddles are long narrow pieces of wood, to the ends of which the cords that move the lisses are fastened. 20. The treddle-cords are only distinguished from the riding-cords by a board full of holes, which divide them, in order to prevent the plate-leads, which are tied to the high-lisses, from pulling them too high when the workman's foot is off the treddle: which stop is made by a knot in the treddle-cord, too big to be forced through that hole in the board. 21. The lames are two pieces of thin narrow boards, only used in plain works, and then to supply the place of the long-harnes. 22. The knee-roll, by which the weaver rolls up his ribbon as he sees proper, or by bit and bit as it is finished. 23. The back-rolls, on which the warp is rolled. It is to be observed, that there is always as many rolls as colours in the work to be wove. 24. The clamps, which support the rollers. 25. The returning-sticks, or, as others call them, the *returns*, or the *tumblers*, or *pulleys*, to which the tiers are tied, to clear the course of cords through the high-lisses. 26. The catch-board for the tumblers. 27. The tire-board. 28. The buttons for the knee-rolls and treddle-board, described in number 20.

Ribbons of all sorts are prohibited from being imported.

RIBANDS (from *rib* and *band*), in naval architecture,

ture, long narrow flexible pieces of timber, nailed upon the outside of the ribs, from the stem to the stern-post, so as to envelope the ship lengthwise, and appear on her side and bottom like the meridians on the surface of the globe. The ribands being judiciously arranged with regard to their height and distance from each other, and forming regular sweeps about the ship's body, will compose a kind of frame, whose interior surface will determine the curve of all the intermediate or filling-timbers which are stationed between the principal ones. As the figure of the ship's bottom approaches to that of a conoid, and the ribands have a limited breadth, it is apparent that they cannot be applied to this convex surface without forming a double curve, which will be partly vertical and partly horizontal; so that the vertical curve will increase by approaching the stem, and still more by drawing near the stern-post. It is also evident, that by deviating from the middle line of the ship's length, as they approach the extreme breadth at the midship-frame, the ribands will also form an horizontal curve. The lowest of these, which is terminated upon the stem and stern-post, at the height of the rising-line of the floor, and answers to the upper part of the floor-timber upon the midship-frame, is called the *floor-riband*. That which coincides with the wing-transom, at the height of the lower-deck upon the midship-frame, is termed the *breadth-riband*; all the rest, which are placed between these two, are called *intermediate ribands*. See SHIP-BUILDING.

RIBES, the CURRANT and GOOSEBERRY-BUSH: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 36th order, *Pomaceæ*. There are five petals, and stamina inserted into the calyx; the style is bifid; the berry polyspermous, inferior.

The currant and the gooseberry were long considered each as a separate genus; *ribes* the currant, and *grossularia* the gooseberry; but they are now joined together, the *grossularia* being made a species of *ribes*; all the currant kinds having inermous or thornless branches, and racemous clusters of flowers and fruit; and the gooseberry have spinous branches, and flowers and fruit for the most part singly.

There are three species of the currant-tree; two of which, and their varieties, merit culture for their fruit; the other as a plant of variety or observation: all of which are inermous or unarmed, having no thorns on the branches.

1. *Rubrum*, common red-currant tree, &c. hath a shrubby stem, dividing low into many branches, forming a bushy head, five or six feet high or more, without thorns; broad trilobate leaves, and smooth pendulous clusters of plane greenish flowers, succeeded by small clusters of berries. It grows naturally in woods and the hedges in most parts of Europe, and comprises all sorts of red and white currants; as, common small red currant—large bunched red currant—Champaigne pale-red currant—common small white currant—large white Dutch currant—yellow blotched-leaved currant—silver striped leaved—gold striped leaved—gooseberry-leaved. All these sorts are varieties of one species, *ribes rubrum*, or common red currant; it being the parent from which all the others were first obtained from the seed, and improved by culture. They all flower in the spring, and the fruit ripens in June and

July; and by having the trees in different situations and modes of training, such as plantations of standards in the open quarters for the general supply, others trained against walls or pales of different aspect, the fruit may be continued ripe in good perfection from about the middle of June until November; provided the later crops are defended with mats or nets from the birds.

2. The *nigrum*, or black currant tree, hath a shrubby stem, dividing low into many branches, forming a bushy head five or six feet high; broad trilobate leaves of a rank odour, and having racemous clusters of oblong greenish flowers, succeeded by thin clusters of black berries. The fruit of this species being of a strong flavour, and somewhat physical relish, is not generally liked; it, however, is accounted very wholesome: there is also made of it a syrup of high estimation for sore throats and quinies; hence the fruit is often called *quinancy berries*. There is a variety called the *Pennsylvanian black currant*, having smaller shoots and leaves, not strong scented, and small fruit but of little value; so the shrub is esteemed only for variety and shrubberies. The mode of bearing of all the varieties of currants is both in the old and young wood all along the sides of the branches and shoots, often upon a sort of small sprigs and snags, producing the fruit in numerous long pendulous clusters.

3. The *grossularia*, or common gooseberry bush, rises with a low shrubby stem, dividing low into a very branched bushy head, armed with spines; trilobate smallish leaves, having hairy ciliated footstalks; and small greenish flowers, succeeded by hairy berries. It consists of many varieties, of different sizes and colours.

4. The *reclinatum*, or reclinated broad-leaved gooseberry-bush, rises with a low shrubby stem, and reclinated somewhat prickly branches, trilobate broadish leaves, and small greenish flowers, having the pedunculi furnished with triphyllous bractea.

5. The *oxyacanthoides*, or oxyacantha-leaved gooseberry, hath a shrubby stem, and branches armed on all sides with spines, and largish trilobate hawthorn leaves.

6. The *uva crispa*, or smooth gooseberry, hath a shrubby stem, and branches armed with spines; trilobate leaves; pedicles having monophyllous bractea; and smooth fruit.

7. The *cynosbati*, or prickly-fruited gooseberry bush, hath a shrubby stem and branches, armed with spines, mostly at the axillas, and prickly fruit in clusters.

All the above seven species of ribes, both currants and gooseberry kinds, and their respective varieties, are very hardy shrubs, that prosper almost anywhere, both in open and shady situations; and in any common soil; bearing plentifully in any exposure, though in open sunny situations they produce the largest and fairest fruit, ripening to a richer vinous flavour; but it is eligible to plant them in different situations and aspects, in order to have the fruit as early and late as possible.

They are commonly planted in the kitchen-garden, mostly as dwarf standards, in the open quarters, for the general supply; being disposed sometimes in continued plantations in rows, eight or ten feet by six asunder, where great quantities of the fruit are required for market or other large supplies; and are sometimes disposed in single ranges round the outward edge.

Ribes
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Riccia.

edge of the quarters, eight feet asunder; frequently in single cross rows, in order to divide the ground into separate wide plats or breaks, of from 20 to 30 or 40 feet wide, which also serves to shelter the ground a little in winter; in all of which methods of planting them as standards, they should be generally trained up to a single stem about a foot high, then suffered to branch out every way all around into bushy heads, keeping the middle, however, open, and the branches moderately thin, to admit the sun and free air; though if some are fanned, that is, trimmed on two sides oppositely, so as to make the other branches range in a line like an espalier, they will take up much less of the ground, and, by admitting the sun and air more freely, they will produce large fair fruit. They are likewise trained against walls or palings, like other wall-trees, but principally some of the large red and white Dutch currants, in which they will produce fine large fruit, and those against any south fence will ripen early, and be high flavoured; but it is proper to plant a few both against south, north, east, and west walls, in order to obtain the fruit ripe both early and late, in a long succession. It is also proper to plant a few of the finest sorts of gooseberries against a warm fence, both to have early green gooseberries for tarts, &c. as well as to ripen early; and they will grow very large and fine. Sometimes both currants and gooseberries are also trained in low espaliers for variety, and they produce very fine fruit.

The fruits both of the currant and gooseberry are of an acid and cooling nature, and as such are sometimes used in medicine, especially the juice reduced to a jelly by boiling with sugar. From the juice of currants also a very agreeable wine is made.

RICAUT, or RYCAUT (Sir Paul), an eminent English traveller, of the time of whose birth we find no account; but in 1661, he was appointed secretary to the earl of Winchelsea, who was sent ambassador extraordinary to the Ottoman Porte. During his continuance in that station, he wrote, "The present State of the Ottoman Empire, in three books, containing the maxims of the Turkish policy, their religion, and military discipline," London, folio, 1670. He afterwards resided 11 years as consul at Smyrna, where, at the command of Charles II. he composed "The present state of the Greek and Armenian Churches, anno Christi 1678." On his return, Lord Clarendon being appointed lord-lieutenant of Ireland, made him his principal secretary for Leinster and Connaught: king James II. knighted him; and made him one of the privy council in Ireland, and judge of the court of admiralty; all which he held to the Revolution. He was employed by King William as resident at the Hanse-towns in Lower Saxony, where he continued for ten years; but being worn out with age and infirmities, he obtained leave to return in 1700, and died the same year. Ricaut continued "Knolles's History of the Turks, and Platina's Lives of the Popes;" besides which, there are some other productions under his name.

RICCIA, in botany: A genus of the natural order of algæ, belonging to the cryptogamia class of plants. There is no calyx, but a vesicular cavity within the substance of the leaf. There is no corolla; the antheræ are cylindrical, and sessile, placed on the germen, which is turbinate; the style is filiform, perforating the an-

thera; and the seed-case is spherical, crowned with the withered anthera; the seeds are hemispherical and pedicelled.

RICE. See ORYZA. "Rice *bras*, (says Mr Marten) whilst in the husk, is in India called *paddee*, and assumes a different name in each of its other various states. We observe no distinction of this kind in Europe, where our grain retains through all its stages, till it becomes flour, its original name of barley, wheat, or oats. The following, beside many others, are names applied to rice, in its different stages of growth and preparation: *paddee*, original name of the seed: *oossay*, grain of last season: *bunnee*, the plants before removed to the sawoors: *bras* or *bray*, rice, the husk of the *paddee* being taken off: *charroop*, rice cleaned for boiling; *nassée*, boiled rice: *peerang*, yellow rice: *jambar*, a service of rice, &c.

Among people whose general objects of contemplation are few, those which do of necessity engage their attention, are often more nicely discriminated than the same objects among more enlightened people, whose ideas ranging over the extensive field of art and science, disdain to fix long on obvious and common matters. *Paddee*, on Sumatra and the Malay islands, is distinguished into two sorts; *Laddang* or up-land *paddee*, and *Sawoor* or low-land, which are always kept separate, and will not grow reciprocally. Of these the former bears the higher price, being a whiter, heartier, and better flavoured grain, and having the advantage in point of keeping. The latter is much more prolific from the seed, and liable to less risk in the culture, but is of a watery substance, produces less increase in boiling, and is subject to a swifter decay. It is, however, in more common use than the former. Beside this general distinction, the *paddee* of each sort, particularly the *Laddang*, presents a variety of species, which, as far as my information extends, I shall enumerate, and endeavour to describe. The common kind of dry ground *paddee*: colour, light brown: the size rather large, and very little crooked at the extremity. *Paddee undallong*: dry ground: short round grain: grows in whorles or bunches round the stock. *Paddee ebbafs*: dry ground: large grain: common. *Paddee galloo*: dry ground: light coloured: scarce. *Paddee fennee*: dry ground: deep coloured; small grain: scarce. *Paddee ejo*: dry ground: light coloured. *Paddee keening*: dry ground: deep yellow: fine rice: crooked, and pointed. *Paddee coocoor ballum*: dry ground: much esteemed: light coloured; small, and very much crooked, resembling a dove's nail, from whence its name. *Paddee pesang*: dry ground: outer coat light brown; inner red: longer, smaller, and less crooked than the *coocoor ballum*. *Paddee Santong*: the finest sort that is planted in wet ground: small, straight, and light coloured. In general it may be observed that the larger grained rice is the least esteemed, and the smaller and whiter the most prized. In the Lampoon country they make a distinction of *paddee crawang* and *paddee jerroo*; the former of which is a month earlier in growth than the latter."

RICE-BIRD. See ORYZIVERA.

RICE-BUNTING. See EMBERIZA.

RICHARD I. II. and III. kings of England. See ENGLAND.

RICHARDIA, in botany: A genus of the monogynia order, belonging to the hexandria class of plants; and

Ric
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Richa
History
p. 60.

Richardson. and in the natural method ranking under the 47th order, *Stellata*. The calyx is sexpartite; the corolla monopetalous, and subcylindrical; and there are three seeds.

RICHARDSON (Samuel), a celebrated English sentimental novel-writer, born in 1688, was bred to the business of a printer, which he exercised all his life with eminence. Though he is said to have understood no language but his own, yet he acquired great reputation by his three epistolary novels, intitled *Pamela*, *Clarissa*, and *Sir Charles Grandison*; which show an uncommon knowledge of human nature. His purpose being to promote virtue, his pictures of moral excellence are by much too highly coloured; and he has described his favourite characters such rather as we might wish them to be, than as they are to be found in reality. It is also objected by some, that his writings have not always the good effect intended: for that, instead of improving natural characters, they have fashioned many artificial ones; and have taught delicate and refined ladies and gentlemen to despise every one but their own self-exalted persons. But after all that can be urged of the ill effects of Mr Richardson's novels on weak minds, eager to adopt characters they can only burlesque; a sensible reader will improve more by studying such models of perfection, than of those nearer to the natural standard of human frailty, and where those frailties are artfully exaggerated so as to fix and misemploy the attention on them. A stroke of the palsy carried off Mr Richardson, after a few days illness, upon the 4th of July 1761. He was a man of fine parts, and a lover of virtue; which, for aught we have ever heard to the contrary, he showed in his life and conversation as well as in his writings. Besides the works above-mentioned, he is the author of an *Æsop's Fables*, a *Tour through Britain*, 4 vols, and a volume of *Familiar Letters* upon business and other subjects. He is said from his childhood to have delighted in letter-writing; and therefore was the more easily led to throw his romances into that form; which, if it enlivens the history in some respects, yet lengthens it with uninteresting prate, and formalities that mean nothing, and on that account is sometimes found a little tedious and fatiguing.

The most eminent writers of our own country, and even of foreign parts, have paid their tribute to the transcendent talents of Mr Richardson, whose works have been published in almost every language and country of Europe. They have been greatly admired, notwithstanding every dissimilitude of manners, or every disadvantage of translation. M. Diderot, a late celebrated French author, speaking of the means employed to move the passions, in his *Essay on Dramatic Poetry*, mentions Richardson as a perfect master of that art: "How striking (says he), how pathetic, are his descriptions! His personages, though silent, are alive before me; and of those who speak, the actions are still more affecting than the words."—The famous John-James Rousseau, speaking, in his letter to M. d'Alembert, of the novels of Richardson, asserts, "that nothing was ever written equal to, or even approaching them, in any language."—Mr Aaron Hill calls his *Pamela* a "delightful nursery of virtue."—Dr Warton speaks thus of *Clementina*: "Of all representations of madness, that of *Clementina*, in the *History of Sir Charles Grandison*,

is the most deeply interesting. I know not whether even the madness of Lear is wrought up, and expressed, by so many little strokes of nature and passion. It is absolute pedantry to prefer and compare the madness of Orestes in Euripides to this of *Clementina*."—Dr Johnson, in his Introduction to the 97th number of the *Rambler*, which was written by Mr Richardson, observes, that the reader was indebted for that day's entertainment to an author, "from whom the age has received greater favours, who has enlarged the knowledge of human nature, and taught the passions to move at the command of virtue;" and, in his *Life of Rowe*, he says, "The character of Lothario seems to have been expanded by Richardson into that of Lovelace; but he has excelled his original in the moral effect of the fiction. Lothario, with gaiety which cannot be hated, and bravery which cannot be despised, retains too much of the spectator's kindness. It was in the power of Richardson alone to teach us at once esteem and detestation; to make virtuous resentment overpower all the benevolence which wit, and elegance, and courage, naturally excite; and to lose at last the hero in the villain."—Dr Young very pertinently observed, that Mr Richardson, with the mere advantages of nature, improved by a very moderate progress in education, struck out at once, and of his own accord, into a new province of writing, in which he succeeded to admiration. And what is more remarkable, that he not only began, but finished, the plan on which he set out, leaving no room for any one after him to render it more complete: and that not one of the various writers that have ever since attempted to imitate him, have in any respect equalled, or at all approached near him. This kind of romance is peculiarly his own; and "I consider him (continues the Doctor) as a truly great natural genius; as great and supereminent in his way as Shakespeare and Milton were in theirs."

RICHARDSON (Jonathan), a celebrated painter of heads, was born about the year 1665, and against his inclination was placed by his father-in-law apprentice to a scrivener, with whom he lived six years; when obtaining his freedom by the death of his master, he followed the bent of his disposition, and at 20 years old became the disciple of Riley; with whom he lived four years, whose niece he married, and of whose manner he acquired enough to maintain a solid and lasting reputation, even during the lives of Kneller and Dahl; and to remain at the head of the profession when they went off the stage.

There is strength, roundness, and boldness in his colouring; but his men want dignity, and his women grace. The good sense of the nation is characterised in his portraits. You see he lived in an age when neither enthusiasm nor servility were predominant. Yet with a pencil so firm, possessed of a numerous and excellent collection of drawings, full of the theory, and profound in reflections on his art, he drew nothing well below the head, and was void of imagination. His attitudes, draperies, and back-grounds, are totally insipid and unmeaning; so ill did he apply to his own practice the sagacious rules and hints he bestowed on others. Though he wrote with fire and judgment, his paintings owed little to either. No man dived deeper into the inexhaustible stores of Raphael, or was more smitten with the native lustre of Vandyck. Yet though cap-

Richardson. ble of tasting the elevation of the one and the elegance of the other, he could never contrive to see with their eyes, when he was to copy nature himself. One wonders that he could comment their works so well, and imitate them so little.

He quitted business himself some years before his death; but his temperance and virtue contributed to protract his life to a great length in the full enjoyment of his understanding, and in the felicity of domestic friendship. He had had a paralytic stroke that affected his arm, yet never disabled him from his customary walks and exercise. He had been in St James's Park, and died suddenly at his house in Queen's-square on his return home, May 28. 1745, when he had passed the 80th year of his age. He left a son and four daughters, one of whom was married to his disciple Mr Hudson, and another to Mr Grigson an attorney. The taste and learning of the son, and the harmony in which he lived with his father, are visible in the joint works they composed. The father in 1719 published two discourses: 1. An Essay on the whole Art of Criticism as it relates to Painting; 2. An Argument in behalf of the Science of a Connoisseur; bound in one volume octavo. In 1722 came forth An Account of some of the statues, bas-reliefs, drawings, and pictures, in Italy, &c. with Remarks by Mr Richardson, senior and junior. The son made the journey; and from his notes, letters, and observations, they both at his return compiled this valuable work. As the father was a formal man, with a slow, but loud and sonorous voice, and, in truth, with some affectation in his manner; and as there is much singularity in his style and expression, these peculiarities (for they were scarcely foibles) struck superficial readers, and between the laughers and the envious the book was much ridiculed. Yet both this and the former are full of matter, good sense, and instruction: and the very quaintness of some expressions, and their laboured novelty, show the difficulty the author had to convey mere visible ideas through the medium of language. Those works remind one of Cibber's inimitable treatise on the stage: when an author writes on his own profession, feels it profoundly, and is sensible his readers do not, he is not only excusable, but meritorious, for illuminating the subject by new metaphors or bolder figures than ordinary. He is the coxcomb that sneers, not he that instructs, in appropriated diction.

If these authors were censured when conversant within their own circle, it was not to be expected that they would be treated with milder indulgence when they ventured into a sifter region. In 1734, they published a very thick octavo, containing explanatory notes and remarks on Milton's Paradise Lost, with the life of the author, and a discourse on the poem. Again were the good sense, the judicious criticisms, and the sentiments that broke forth in this work, forgotten in the singularities that distinguish it. The father having said in apology for being little conversant in classic literature, that he had looked into them through his son, Hogarth, whom a quibble could furnish with wit, drew the father peeping through the nether end of a telescope, with which his son was perforated at a Virgil aloft on a shelf. Yet how forcibly Richardson entered into the spirit of his author, appears from his comprehensive expression, that *Milton was an ancient, born*

two thousand years after his time. Richardson, however, was as incapable of reaching the sublime or harmonious in poetry, as he was in painting, though so capable of illustrating both. Some specimens of verse that he has given us here and there in his works, excite no curiosity for more, though he informs us in his Milton, that if painting was his wife, poetry had been his secret concubine. It is remarkable, that another commentator of Milton has made the same confession,

—Sunt & mihi carmina, me quoque dicunt
Vatem pastores—

says Dr Bentley. Neither the doctor nor the painter add *sed non ego credulus illis*, though all their readers are ready to supply it for both. Besides his pictures and commentaries, we have a few etchings by his hand, particularly two or three of Milton, and his own head. The sale of his collection of drawings, in February 1747, lasted 18 days, and produced about 2060 l. his pictures about 700 l. Hudson his son-in-law bought many of the drawings.

RICHELET (Cæsar Peter), a French writer, born in 1631 at Chemin in Champagne. He was the friend of Patru and Ablancourt; and like them applied himself to the study of the French language with success. He compiled a dictionary of that language, full of new and useful remarks; but exceptionable, as containing many satirical reflections and obscenities. The best edition is that of Lyons, 3 vols folio, 1728. He also collected a small dictionary of rhymes, and composed some other pieces in the grammatical and critical way. He died in 1698.

RICHEs, a word used always in the plural number, means wealth, money, possession, or a splendid sumptuous appearance. When used to express the fortune of private persons, whether patrimonial or acquired, it signifies *opulencia*; term which expresses not the enjoyment, but the possession, of numerous superfluities.—The riches of a state or kingdom expresses the produce of industry, of commerce, of different incorporated bodies, of the internal and external administration of the principal members of which the society is composed, &c.

Our Saviour says, that it is more easy for a camel to go through the eye of a needle, than for a rich man to enter the kingdom of heaven; and we find, in fact, that riches frequently bring along with them a degree of inattention, lukewarmness, and irreligion, such as sufficiently confirms the divine assertion; which is merely a general truth, and which by no means asserts the absolute impossibility of being virtuous and rich at the same time. For as the ancient philosophers wisely taught, riches, considered in themselves, and abstractedly from the bad purposes to which they may be applied, are not necessarily incompatible with virtue and wisdom. They are indeed absolutely indifferent; in good hands they will be useful, and promote the cause of truth, virtue, and humanity; and in bad hands they are the source of much mischief; on the one hand they confer the power of doing much good, and on the other they are equally powerful in doing ill.

To men, however, whose principles of virtue are not sufficiently founded, riches are unquestionably a dangerous and seducing bait; and as the ancients rightly taught, they are to the greatest number of men, in an infinite

infinite variety of circumstances, a powerful obstacle to the practice of moral virtues, to the progress of truth, and a weight which prevents them from rising to that degree of knowledge and perfection of which human nature is capable. They multiply without ceasing the occasions of vice, by the facility which they give to satisfy a multitude of irregular passions, and to turn at length those who are attached to them from the road of virtue, and from the desire of inquiring after truth.

It is this which Seneca means to express, when he says, "that riches in a vast number of cases have been a great obstacle to philosophy; and that, to enjoy freedom of mind necessary for study, a man must live in poverty, or as if he were poor. Every man (adds he) who wishes to lead a pleasant, tranquil, and secure life, must avoid, as much as possible, the deceitfulness of riches, which are a bait with which we allow ourselves to be taken as in a snare, without afterwards having the power to extricate ourselves, being so much the more unhappy, that we believe we possess them, while, on the contrary, they tyrannize over us." *Senec. Epist.* 17. and *Epist.* 8.

"The wise man (says the same author in another place) does not love riches to excess, but he would not choose wholly to divest himself of them; he does not receive them into his soul, but into his house; he is careful of them, and employs them for the purpose of opening a wide field for virtue, and of making it appear in all its splendor. Who can doubt that a wise man has not more occasions of displaying the elevation and greatness of his mind when he is possessed of riches than when he labours under indigence, since, in the last condition, he can exercise only one virtue, namely, resignation; whereas, riches give him an opportunity of displaying, in their greatest lustre, the virtues of temperance, liberality, diligence, regularity, and magnificence. There is no occasion, then, to prohibit philosophers from the use of wealth, or to condemn wisdom to poverty. The philosopher may possess the greatest riches, provided he has not employed force or shed blood in acquiring them; provided he has not gained them by unjust or illegal means; in a word, provided the use which he makes of them be as pure as the source from which they were derived, and no person (the envious excepted) regretting his possession; he will not refuse the kindness of fortune, and will enjoy, without shame or pride, the wealth acquired by honest means; he will have more reason to glory, if, after exposing his riches to the view of the whole world, he can desire any person to carry away the reward of treachery or the fruits of oppression. If, after these words, his riches continue undiminished, this man is truly great, and worthy to be rich. If he has not allowed to enter into his possession the smallest piece of money gained by unwarrantable means, neither will he refuse the greatest riches, which are the blessings of fortune, and the fruit of virtue: if he can be rich, he will choose to be so, and he shall have riches; but he will regard them as blessings of uncertain possession, and of which he may be every moment deprived; he will not permit them to be a load to himself or to others; he will give them to the good, or to those whom he would make good; but he will give them with the nicest wisdom, taking care always to distribute them to the most

worthy, and to those who remember that they must give an account, as well of the wealth which they receive from heaven, as of the purposes to which it is applied." *Senec. de Vita Beata*, cap. 21, 22, & 23.

RICHLIEU (John Armand du Plessis de), cardinal of Richlieu and Fronfac, bishop of Lucon, &c. was born at Paris in 1585. He was of excellent parts; and at the age of 22 had the address to obtain a dispensation to enjoy the bishopric of Lucon in 1607. Returning into France, he applied himself in a particular manner to the function of preaching; and his reputation this way procured him the office of almoner to the queen Mary de Medicis. His abilities in the management of affairs advanced him to be secretary of state in 1616; and the king soon gave him the preference to all his other secretaries. The death of the marquis d'Ancre having produced a revolution in state affairs, Richlieu retired to Avignon; where he employed himself in composing books of controversy and piety. The king having recalled him to court, he was made a cardinal in 1622; and, two years after, first minister of state, and grand master of the navigation. In 1626, the isle of Rhée was preserved by his care, and Rochelle taken, having stopped up the haven by that famous dyke which he ordered to be made there. He accompanied the king to the siege of Casal, and contributed not a little to the raising of it in 1629. He also obliged the Huguenots to the peace at Alets, which proved the ruin of that party; he took Pamerol, and succoured Casal besieged by Spinola. In the mean time the nobles found fault with his conduct, and persuaded the king to discard him. The cardinal, for his part, was unmoved with it; and by his reasonings overthrew what was thought to be determined against him; so that, instead of being disgraced, he from that moment became more powerful than ever. He punished all his enemies in the same manner as they would have had him suffer; and the day which produced this event, so glorious to cardinal Richlieu, was called the *day of dupes*. This able minister had from thenceforwards an ascendancy over the king's mind; and he now resolved to humble the excessive pride of the house of Austria. For that purpose he concluded a treaty with Gustaphus Adolphus king of Sweden, for carrying the war into the heart of Germany. He also entered into a league with the duke of Bavaria; secured Lorrain; raised a part of the princes of the empire against the emperor; treated with the Dutch to continue the war against Spain; favoured the Catalans and Portuguese till they shook off the Spanish yoke; and, in short, took so many different measures, that he accomplished his design; and after having carried on the war with success, was thinking of concluding it by a peace, when he died at Paris on the 4th of December 1642, aged 58. He was interred in the Sorbonne, where a magnificent mausoleum is erected to his memory. This great politician made the arts and sciences flourish; formed the botanical garden at Paris, called the *king's garden*; founded the French academy; established the royal printing-house; erected the palace afterwards called *Le Palais Royal*, which he presented to the king; and rebuilt the Sorbonne with a magnificence that appears truly royal. Besides his books of controversy and piety, there go under the name of this minister, *A Journal*, in 2 vols 12mo; and a *Political Testament*, in 12mo; all treating of politics and state affairs. Cardinal

Ricinus. nal Mazarine pursued Richlieu's plan, and completed many of the schemes which he had begun, but left unfinished.

N. London Medical Journal, vol. viii. part iii. p. 278. Plate CCCXXXVII.

RICINUS, or **PALMA CHRISTI**, in botany: A genus of the monodelphia order, belonging to the monoecea class of plants; and in the natural method ranking under the 38th order, *Tricocæ*. The male calyx is quinquepartite; there is no corolla; the stamina numerous. The female calyx is tripartite; there is no corolla, but three bifid styles, with a trilocular capsule, and a single seed. There are three species, of which the most remarkable is the communis, or common palma Christi. This tree is of speedy growth, as in one year it arrives at its full height, which seldom exceeds 20 feet. The trunk is subligneous; the pith is large; the leaves broad and palmated; the flower spike is simple, and thickly set with yellow blossoms in the shape of a cone; the capsules are triangular and prickly, containing three smooth gray mottled seeds. When the bunches begin to turn black, they are gathered, dried in the sun, and the seeds picked out. They are afterwards put up for use as wanted, or for exportation.

Castor oil is obtained either by expression or by decoction. The first method is practised in England; the latter in Jamaica. It is common first to parch the nuts or seeds in an iron pot over the fire; but this gives the oil an empyreumatic taste, smell, and colour; and it is best prepared in this manner: A large iron pot or boiler is first prepared, and half filled with water. The nuts are then beaten in parcels in deep wooden mortars, and after a quantity is beaten it is thrown into the iron vessel. The fire is then lighted, and the liquor is gently boiled for two hours, and kept constantly stirred. About this time the oil begins to separate, and swims on the top, mixed with a white froth, and is skimmed off till no more rises. The skimmings are heated in a small iron pot, and strained through a cloth. When cold, it is put up in jars or bottles for use.

Castor oil, thus made, is clear and well flavoured, and if put into proper bottles will keep sweet for years. The expressed castor oil soon turns rancid, because the mucilaginous and acrid parts of the nut are squeezed out with the oil. On this account the preference is given to well prepared oil by decoction. An English gallon of the seeds yield about two pounds of oil, which is a great proportion.

Before the disturbances in America, the planters imported train oil for lamps and other purposes about sugar works. It is now found that the castor oil can be procured as cheap as the fish oil of America: it burns clearer, and has not any offensive smell. This oil, too, is fit for all the purposes of the painter, or for the apothecary in ointments and plasters. As a medicine, it purges without stimulus, and is so mild as to be given to infants soon after birth, to purge off the meconium. All oils are noxious to insects, but the castor oil kills and expels them. It is generally given as a purge after using the cabbage bark some days. In constipation and belly-ach this oil is used with remarkable success. It sits well on the stomach, allays the spasm, and brings about a plentiful evacuation by stool, especially if at the same time fomentations, or the warm bath, are used. Belly-ach is at present less frequent in Jamaica than formerly, owing to several causes. The inhabitants, in general, live better, and drink better liquors; but the

excessive drinking of new rum still makes it frequent amongst soldiers, sailors, and the lower order of white people. It has been known to happen too from visceral obstructions after intermittents, or marsh fevers, in Jamaica.

The *ricinus Americanus* grows as tall as a little tree, and is so beautiful that Millar says it deserves a place in every curious garden, and he planted it himself at Chelsea. It expands into many branches; the leaves are sometimes two feet in diameter; and the stem as large as a middle-sized broom staff; towards the top of the branch it has a cluster of flowers, something resembling a bunch of grapes; the flowers are small and staminate, but on the body of the plant grow bunches of rough triangular husks, each containing three speckled seeds, generally somewhat less than horse beans; the shell is brittle, and contains white kernels of a sweet, oily, and nauseous taste. From this kernel the oil is extracted; and if the medicine should become officinal, the seeds may be imported at a reasonable rate; as the plant grows wild and in great plenty in all the British and French American islands. See *OLEUM Palmæ Christi*. Of the *ricinus communis* there are a great many varieties; all of them fine majestic plants, annual, or at most biennial, in this country; but in their native soil they are said to be perennial both in root and stem. They are propagated by seeds sown on a hot-bed, and require the same treatment as other tender exotics.

RICKEYS, in medicine. See there, n° 347.

RICOCHET, in gunnery, is when guns, howitzers, or mortars, are loaded with small charges, and elevated from 5 to 12 degrees, so as to fire over the parapet, and the shot or shell rolls along the opposite rampart: it is called *ricochet-firing*, and the batteries are likewise called *ricochet-batteries*. This method of firing was first invented by M. Belidor, and first used at the siege of Ath in 1697. This mode of firing out of mortars was first tried in 1723 at the military school at Strasbourg, and with success. At the battle of Rossbach, in 1757, the king of Prussia had several 6-inch mortars made with trunnions, and mounted on travelling-carriages, which fired obliquely on the enemy's lines, and amongst their horse, loaded with 8 ounces of powder, and at an elevation of one degree 15 minutes, which did great execution; for the shells rolling along the lines, with burning fuzes, made the stoutest of the enemy not wait for their bursting.

RICOTIA, in botany: A genus of the siliquosa order, belonging to the tetradynamia class of plants; and in the natural method ranking under the 39th order, *Siliquosæ*. The siliqua is unilocular, oblong, and compressed, with plain valves.

RIDGE, in agriculture, a long piece of rising land between two furrows. See *AGRICULTURE*, n° III.

RIDGLING, or **RIDGEL**, among farriers, &c. the male of any beast that has been but half-gelt.

RIDICULE, in matters of literature, is that species of writing which excites contempt with laughter.

The *ridiculous*, however, differs from the *risible*, (see *RISIBLE*.) A risible object produceth an emotion of laughter merely; a ridiculous object is improper as well as risible; and produceth a mixed emotion, which is vented by a laugh of derision or scorn.

Burlesque, though a great engine of ridicule, is not confined to that subject; for it is clearly distinguishable into burlesque that excites laughter merely, and burlesque

Burlesque that provokes derision or ridicule. A grave subject in which there is no impropriety, may be brought down by a certain colouring so as to be risible; which is the case of *Virgil Travestie*, and also the case of the *Secchia Rapita*; the authors laugh first, in order to make their readers laugh. The *Lutrin* is a burlesque poem of the other sort, laying hold of a low and trifling incident, to expose the luxury, indolence, and contentious spirit of a set of monks. Boileau, the author, gives a ridiculous air to the subject, by dressing it in the heroic style, and affecting to consider it as of the utmost dignity and importance. In a composition of this kind, no image professedly ludicrous ought to find quarter, because such images destroy the contrast; and accordingly the author shows always the grave face, and never once betrays a smile.

Though the burlesque that aims at ridicule produces its effects by elevating the style far above the subject, yet it has limits beyond which the elevation ought not to be carried: the poet, consulting the imagination of his readers, ought to confine himself to such images as are lively and readily apprehended: a strained elevation, soaring above an ordinary reach of fancy, makes not a pleasant impression: the reader, fatigued with being always upon the stretch, is soon disgusted; and, if he persevere, becomes thoughtless and indifferent.—Further, a fiction gives no pleasure unless it be painted in colours so lively as to produce some perception of reality; which never can be done effectually where the images are formed with labour or difficulty. For these reasons, we cannot avoid condemning the *Batrachomyomachia*, said to be the composition of Homer: it is beyond the power of imagination to form a clear and lively image of frogs and mice acting with the dignity of the highest of our species; nor can we form a conception of the reality of such an action, in any manner so distinct as to interest our affections even in the slightest degree.

The *Rape of the Lock* is of a character clearly distinguishable from those now mentioned; it is not properly a burlesque performance, but what may rather be termed an *heroic-comical poem*: it treats a gay and familiar subject with pleasantry, and with a moderate degree of dignity: the author puts not on a mask like Boileau, nor professes to make us laugh like Tassoni. The *Rape of the Lock* is a genteel species of writing, less strained than those mentioned; and is pleasant or ludicrous without having ridicule for its chief aim; giving way, however, to ridicule where it arises naturally from a particular character, such as that of Sir Plume. Addison's *Spectator**, upon the exercise of the fan, is extremely gay and ludicrous, resembling in its subject the *Rape of the Lock*.

There remains to show, by examples, the manner of treating subjects so as to give them a ridiculous appearance.

Il ne dit jamais, je vous donne, mais, je vous prete le bon jour.

Moliere.

Orleans. I know him to be valiant.

Constable. I was told that by one that knows him better than you.

Orleans. What's he?

Constable. Marry, he told me so himself; and he said, he can't not who knew it.

Henry V. Shakspeare.

He never broke any man's head but his own, and that was against a post when he was drunk. *Ibid.*

Mirhamont. Sententious Mirabel! prithee don't look with that violent and inflexible wife face, like Solomon at the dividing of the child in an old tapestry-hanging.

Way of the World.

A true critic, in the perusal of a book, is like a dog at a feast, whose thoughts and stomach are wholly set upon what the guests fling away, and consequently is apt to snarl most when there are the fewest bones.

Tale of a Tub.

In the following instances, the ridicule arises from absurd conceptions in the persons introduced.

Mascarille. Te souvient-il, vicomte, de cette demi-lune, que nous emportames sur les ennemis au siege d'Afras?

Jodelet. Que veux-tu dire avec ta demi-lune? c'étoit bien une lune tout entiere.

Moliere, les Precieuses Ridicules, sc. 11.

Slander. I came yonder at Eaton to marry Mrs Anne Page; and she's a great lubberly boy.

Page. Upon my life then you took the wrong—

Slander. What need you tell me that? I think so when I took a boy for a girl: if I had been married to him, for all he was in woman's apparel, I would not have had him.

Merry Wives of Windsor.

Valentine. Your blessing, Sir.

Sir Sampson. You've had it already, Sir: I think I sent it you to-day in a bill for four thousand pound; a great deal of money, brother Foresight.

Foresight. Ay, indeed, Sir Sampson, a great deal of money for a young man; I wonder what he can do with it.

Love for Love, act 2. sc. 7.

Millament. I nauseate walking; 'tis a country diversion; I lothe the country, and every thing that relates to it.

Sir Wilfull. Indeed, hah! look ye, look ye, you do? nay, 'tis like you may—here are choice of pastimes here in town, as plays and the like; that must be confest'd, indeed.

Millament. Ah l'etourdie! I hate the town too.

Sir Wilfull. Dear heart; that's much—hah! that you should hate 'em both! hah! 'tis like you may; there are some can't relish the town, and others can't away with the country—'tis like you may be one of these, Cousin.

Way of the World, act 4. sc. 4.

Lord Froth. I assure you, Sir Paul, I laugh at nobody's jests but my own, or a lady's: I assure you, Sir Paul.

Brist. How? how, my Lord? what, affront my wit? Let me perish, do I never say any thing worthy to be laugh'd at?

Lord Froth. O foy, don't misapprehend me, I don't say so, for I often smile at your conceptions. But there is nothing more unbecoming a man of quality than to laugh; 'tis such a vulgar expression of the passions! every body can laugh. Then especially to laugh at the jest of an inferior person, or when any body else of the same quality does not laugh with one; ridiculous! To be pleas'd with what pleases the crowd! Now, when I laugh I always laugh alone.

Double Dealer, act 1. sc. 4.

So.

Ridicule.

So sharp-sighted is pride in blemishes, and so willing to be gratified, that it takes up with the very slightest improprieties: such as a blunder by a foreigner in speaking our language, especially if the blunder can bear a sense that reflects on the speaker:

Quickly. The young man is an honest man.

Caius. What shall de honest man do in my closet? dere is no honest man dat shall come in my closet.

Merry Wives of Windsor.

Love speeches are finely ridiculed in the following passage,

Quoth he, My faith as adamantine,
As chains of destiny, I'll maintain;
True as Apollo ever spoke,
Or oracle from heart of oak;
And if you'll give my flame but vent,
Now in close hugger-mugger pent,
And shine upon me but benignly,
With that one and that other pigmy,
The sun and day shall sooner part
Than love, or you, shake off my heart;
The sun, that shall no more dispense
His own, but your bright influence:
I'll carve your name on barks of trees,
With true love-knots and flourishes;
That shall infuse eternal spring,
And everlasting flourishing:
Drink every letter on't in stum,
And make it brisk champaign become.
Where'er you tread, your foot shall set
The primrose and the violet;
All spices, perfumes, and sweet powders,
Shall borrow from your breath their odours;
Nature her charter shall renew
And take all lives of things from you;
The world depend upon your eye,
And, when you frown upon it, die.
Only our loves shall still survive,
New-worlds and natures to out-live;
And, like to herald's moons, remain
All crescents, without change or wane.

Hudibras, part 2. canto 1.

Those who have a talent for ridicule, which is seldom united with a taste for delicate and refined beauties, are quick-sighted in improprieties; and these they eagerly grasp, in order to gratify their favourite propensity. Persons galled are provoked to maintain that ridicule is improper for grave subjects. Subjects really grave are by no means fit for ridicule; but then it is urged against them, that, when called in question whether a certain subject be really grave, ridicule is the only means of determining the controversy. Hence a celebrated question, Whether ridicule be or be not a test of truth?

On one side, it is observed, that the objects of ridicule are falsehood, incongruity, impropriety, or turpitude of certain kinds: but as the object of every excited passion must be examined by reason, before we can determine whether it be proper or improper; so ridicule must, apparently at least, establish the truth of the improprieties designed to excite the passion of contempt. Hence it comes in to the aid of argument and reason, when its impressions on the imagination are consistent with the nature of things; but when it strikes the fancy

and affections with fictitious images, it becomes the instrument of deceit. But however ridicule may impress the idea of apparent turpitude or falsehood in the imagination, yet still reason remains the supreme judge; and thus ridicule can never be the final test or touchstone of truth and falsehood.

On the other side, it is contended that ridicule is not a subject of reasoning, but of sense or taste; (see and compare the articles *RISIBLE* and *CONGRUITY*.) Stating the question, then, in more accurate terms, Whether the sense of ridicule be the proper test for distinguishing ridiculous objects from what are not so? they proceed thus: No person doubts that our sense of beauty is the true test of what is beautiful; and our sense of grandeur, of what is great or sublime. Is it more doubtful whether our sense of ridicule be the true test of what is ridiculous? It is not only the true test, but indeed the only test; for this subject comes not, more than beauty or grandeur, under the province of reason. If any subject, by the influence of fashion or custom, have acquired a degree of veneration to which naturally it is not entitled, what are the proper means for wiping off the artificial colouring, and displaying the subject in its true light? A man of true taste sees the subject without disguise; but if he hesitate, let him apply the test of ridicule, which separates it from its artificial connections, and exposes it naked with all its native improprieties.—But it is urged, that the gravest and most serious matters may be set in a ridiculous light. Hardly so; for where an object is neither risible nor improper, it lies not open in any quarter to an attack from ridicule.

RIDING, in general, signifies the being carried along on any vehicle.

RIDING on horseback. See *HORSEMANSHIP*.

RIDING, in medicine. During this exercise all the viscera are shaken, and pressed against each other; at the same time the pure air acts with a greater force on the lungs. Weakly persons, or those whose stomachs are infirm, should, however, be cautious of riding before their meals are somewhat digested.

RIDING, in naval affairs, is the state of a ship's being retained in a particular station, by means of one or more cables with their anchors, which are for this purpose sunk into the bottom of the sea, &c. in order to prevent the vessel from being driven at the mercy of the wind or current.—A rope is said to *ride*, when one of the turns by which it is wound about the capstern or windlass lies over another, so as to interrupt the operation of heaving.

RIDING Athwart, the position of a ship which lies across the direction of the wind and tide, when the former is so strong as to prevent her from falling into the current of the latter.

RIDING between the Wind and Tide, the situation of a vessel at anchor, when the wind and tide act upon her in direct opposition, in such a manner as to destroy the effort of each other upon her hull; so that she is in a manner balanced between their reciprocal force, and rides without the least strain on her cables. When a ship does not labour heavily, or feel a great strain when anchored in an open road or bay, she is said to ride easy. On the contrary, when she pitches violently into the sea, so as to strain her cables, masts, or hull, it is called *riding hard*, and the vessel is termed a *bad rider*.

ing. *roadster.* A ship is rarely said to *ride* when she is fastened at both the ends, as in a harbour or river, that situation being comprehended in the article *MOORING*.

RIDING, a district visited by an officer.—Yorkshire is divided into three ridings, viz. the east, west, and north ridings. In all indictments in that county, both the town and riding must be expressed.

RIDING, as connected with gardening, and susceptible of embellishment. See *GARDENING*.

A riding, though in extent differing so widely from a garden, yet agrees with it in many particulars: for, exclusive of that community of character which results from their being both improvements, and both destined to pleasure, a closer relation arises from the property of a riding, to extend the idea of a seat, and appropriate a whole country to the mansion; for which purpose it must be distinguished from common roads, and the marks of distinction must be borrowed from a garden. Those which a farm or a park can supply are faint and few; but whenever circumstances belonging to a garden occur, they are immediately received as evidence of the domain. The species of the trees will often be decisive: plantations of firs, whether placed on the sides of the way, or in clumps or woods in the view, denote the neighbourhood of a seat: even limes and horse-chestnuts are not indifferent; for they have always been frequent in improvements, and rare in the ordinary scenes of cultivated nature. If the riding be carried through a wood, the shrubs, which for their beauty or their fragrance have been transplanted from the country into gardens, such as the sweet-briar, the viburnum, the euonymus, and the wood-bine, should be encouraged in the underwood; and to these may be added several which are still peculiar to shrubberies, but which might easily be transferred to the wildest coverts, and would require no further care.

Where the species are not, the disposition may be particular, and any appearance of design is a mark of improvement. A few trees standing out from a hedge-row, raise it to an elegance above common rusticity: and still more may be done by clumps in a field; they give it the air of a park. A close lane may be decorated with plantations in all the little vacant spaces: and even the groups originally on the spot (whether it be a wood, a field, or a lane), if properly selected, and those only left which are elegant, will have an effect: though every beauty of this kind may be found in nature, yet many of them are seldom seen together, and never unmixed. The number and the choice are symptoms of design.

Another symptom is variety. If the appendages of the riding be different in different fields, if in a lane, or a wood, some distinguishing circumstance be provided for every bend; or when, carried over an open exposure, it winds to several points of view; if this be the conduct throughout, the intention is evident, to amuse the length of the way: variety of ground is also a characteristic of a riding, when it seems to have proceeded from choice; and pleasure being the pursuit, the changes of the scene both compensate and account for the circuit.

But a part undistinguished from a common road, succeeding to others more adorned, will by the contrast alone be sometimes agreeable; and there are beauties frequent in the high-way, and almost peculiar to it,

which may be very acceptable in a riding: a green lane is always delightful; a passage winding between thickets of brambles and briars, sometimes with sometimes without a little spring-wood rising amongst them, or a cut in a continued sweep through the furze of a down or the fern of a heath, is generally pleasant. Nor will the character be absolutely lost in the interruption, it will soon be resumed, and never forgotten; when it has been once strongly impressed, very slight means will preserve the idea.

Simplicity may prevail the whole length of the way when the way is all naturally pleasant, but especially if it be a communication between several spots, which in character are raised above the rest of the country: A fine open grove is unusual, except in a park or a garden; it has an elegance in the disposition which cannot be attributed to accident, and it seems to require a degree of preservation beyond the care of mere husbandry. A neat railing on the edge of a steep which commands a prospect, alone distinguishes that from other points of view. A building is still more strongly characteristic: it may be only ornamental, or it may be accommodated to the reception of company; for though a place to alight at interrupts the range of a riding, yet, as the object of an airing, it may often be acceptable. A small spot which may be kept by the labour of one man, inclosed from the fields, and converted into a shrubbery or any other scene of a garden, will sometimes be a pleasing end to a short excursion from home: nothing so effectually extends the idea of a seat to a distance; and not being constantly visited, it will always retain the charms of novelty and variety.

When a riding is carried along a high road, a kind of a village of property may in appearance be claimed even there, by planting on both sides trees equidistant from each other, to give it the air of an approach: regularity intimates the neighbourhood of a mansion. A village therefore seems to be within the domain, if any of the inlets to it are avenues: other formal plantations about it, and still more trivial circumstances, when they are evidently ornamental, sometimes produce and always corroborate such an effect; but even without raising this idea, if the village be remarkable for its beauty, or only for its singularity, a passage through it may be an agreeable incident in a riding.

The same ground which in the fields is no more than rough, often seems to be romantic when it is the site of a village; the buildings and other circumstances mark and aggravate the irregularity. To strengthen this appearance, one cottage may be placed on the edge of a steep, and some winding steps of unhewn stone lead up to the door; another in a hollow, with all its little appurtenances hanging above it. The position of a few trees will sometimes answer the same purpose; a foot-bridge here and there for a communication between the sides of a narrow dip, will add to the character; and if there be any rills, they may be conducted so as greatly to improve it.

A village which has not these advantages of ground, may, however, be beautiful; it is distinguished by its elegance, when the larger intervals between the houses are filled with open groves, and little clumps are introduced upon other occasions. The church often is, it generally may be, made a picturesque object. Even the cottages may be neat and sometimes grouped

² Riding. with thickets. If the place be watered by a stream, the crossings may be in a variety of pleasing designs; and if a spring rise, or only a well for common use be sunk by the side of the way, a little covering over it may be contrived which shall at the same time be simple and pretty.

There are few villages which may not easily be rendered agreeable. A small alteration in a house will sometimes occasion a great difference in the appearance. By the help of a few trifling plantations, the objects which have a good effect may be shown to advantage, those which have not may be concealed, and such as are similar be disguised. And any form which offends the eye, whether of ground, of trees, or of buildings, may sometimes be broken by the slightest circumstances, by an advanced paling, or only by a bench. Variety and beauty, in such a subject, are rather the effects of attention than expence.

³ Of the buildings designed for objects in a riding. But if the passage through the village cannot be pleasant; if the buildings are all alike, or stand in unmeaning rows and similar situations; if the place furnishes no opportunities to contrast the forms of dwellings with those of out-houses; to introduce trees and thickets; to interpose fields and meadows; to mix farms with cottages; and to place the several objects in different positions: yet on the outside even of such a village there certainly is room for wood; and by that alone the whole may be grouped into a mass, which shall be agreeable when skirted by a riding; and still more so when seen from a distance. The separate farms in the fields, also, by planting some trees about them, or perhaps only by managing those already on the spot, may be made very interesting objects; or if a new one is to be built, beauty may be consulted in the form of the house, and the disposition of its appurtenances. Sometimes a character not their own, as the semblance of a castle or an abbey, may be given to them; they will thereby acquire a degree of consideration, which they cannot otherwise be entitled to: and objects to improve the views are so important to a riding, that buildings must sometimes be erected for that purpose only: but they should be such as by an actual effect adorn or dignify the scene; not those little slight deceptions which are too well known to succeed, and have no merit if they fail: for though a fallacy sometimes contributes to support a character, or suggests ideas to the imagination, yet in itself it may be no improvement of a scene; and a bit of turret, the tip of a spire, and the other ordinary subjects of these frivolous attempts, are so insignificant as objects, that whether they are real or fictitious is almost a matter of indifference.

⁴ Of a garden similar in character to a riding. The same means by which the prospects from a riding are improved, may be applied to those from a garden; though they are not essential to its character, they are important to its beauty; and wherever they abound, the extent only of the range which commands them, determines whether they shall be seen from a riding or a garden. If they belong to the latter, that assumes in some degree the predominant properties of the former, and the two characters approach

very near to each other: but still each has its peculiarities. Progress is a prevailing idea in a riding; and the pleasantness of the way is, therefore, a principal consideration: but particular spots are more attended to in a garden; and to them the communications ought to be subordinate; their direction must be generally accommodated, their beauties sometimes sacrificed to the situation and the character of the scenes they lead to; an advantageous approach to these must be preferred to an agreeable line for the walk; and the circumstances which might otherwise become it are misplaced, if they anticipate the openings: it should sometimes be contrasted to them; be retired and dark if they are splendid or gay, and simple if they are richly adorned. At other times it may burst unexpectedly out upon them; not on account of the surprise, which can have its effect only once; but the impressions are stronger by being sudden; and the contrast is enforced by the quickness of the transition.

In a riding, the scenes are only the amusements of the way, through which it proceeds without stopping: in a garden they are principal; and the subordination of the walk raises their importance. Every art, therefore, should be exerted to make them seem parts of the place. Distant prospects cannot be so; and the alienation does not offend us; we are familiarized to it; the extent forbids every thought of a closer connection; and if a continuation be preserved between them and the points which command them, we are satisfied. But *home-views* suggest other ideas; they appear to be within our reach: they are not only beautiful in prospect, and we can perceive that the spots are delightful; but we wish to examine, to inhabit, and to enjoy them. Every apparent impediment to that gratification is a disappointment; and when the scenes begin beyond the opening, the consequence of the place is lowered; nothing within it engages our notice: it is an exhibition only of beauties, the property of which does not belong to it; and that idea, though indifferent in a riding, which is but a passage, is very disadvantageous to such a residence as a garden. To obviate such an idea, the points of view should be made important; the objects within be appendages to those without; the separations be removed or concealed; and large portions of the garden be annexed to the spots which are contiguous to it. The ideal boundary of the place is then carried beyond the scenes which are thus appropriated to it; and the wide circuit in which they lie, and the different positions in which they may be shown, afford a greater variety than can generally be found in any garden, the scenery of which is confined to the inclosure.

⁵ Persfield (A) is not a large place; the park contains about 300 acres; and the house stands in the midst of it. On the side of the approach, the inequalities of the ground are gentle, and the plantations pretty; but nothing there is great. On the other side, a beautiful lawn falls precipitately every way into a deep vale which shelves down the middle; the declivities are diversified with clumps and with groves; and a number of large trees straggle along the bottom. This lawn is encompassed

Riding.

passed with wood; and through the wood are walks, which open beyond it upon those romantic scenes which furround the park, and which are the glory of Persfield. The Wye runs immediately below the wood: the river is of a dirty colour; but the shape of its course is very various, winding first in the form of a horse-shoe, then proceeding in a large sweep to the town of Chepstowe, and afterwards to the Severn. The banks are high hills; in different places steep, bulging out, or hollow on the sides; rounded, flattened, or irregular at top; and covered with wood, or broken by rocks. They are sometimes seen in front; sometimes in perspective; falling back for the passage, or closing behind the bend of the river; appearing to meet, rising above, or shooting out beyond one another. The wood which incloses the lawn crowns an extensive range of these hills, which overlook all those on the opposite shore, with the country which appears above or between them; and winding themselves as the river winds, their sides, all rich and beautiful, are alternately exhibited; and the point of view in one spot becomes an object to the next.

In many places the principal feature is a continued rock, in length a quarter of a mile, perpendicular, high, and placed upon a height. To resemble ruins is common to rocks: but no ruin of any single structure was ever equal to this enormous pile; it seems to be the remains of a city; and other smaller heaps scattered about it appear to be fainter traces of the former extent, and strengthen the similitude. It stretches along the brow which terminates the forest of Dean; the face of it is composed of immense blocks of stone, but not rugged; the top is bare and uneven, but not craggy; and from the foot of it, a declivity, covered with thicket, slopes gently towards the Wye, but in one part is abruptly broken off by a ledge of rocks, of a different hue, and in a different direction. From the grotto it seems to rise immediately over a thick wood, which extends down a hill below the point of view, across the valley through which the Wye flows, and up the opposite banks, hides the river, and continues without interruption to the bottom of the rock: from another feat it is seen by itself without even its base; it faces another, with all its appendages about it; and sometimes the sight of it is partially intercepted by trees, beyond which, at a distance, its long line continues on through all the openings between them.

Another capital object is the castle of Chepstowe, a noble ruin of great extent; advanced to the very edge of a perpendicular rock, and so immediately rivetted into it, that from the top of the battlements down to the river seems but one precipice: the same ivy which overspreads the face of the one, twines and clusters among the fragments of the other; many towers, much of the walls, and large remains of the chapel, are standing. Close to it is a most romantic wooden bridge, very ancient, very grotesque, at an extraordinary height above the river, and seeming to abut against the ruins at one end, and some rocky hills at the other. The castle is so near to the alcove at Persfield, that little circumstances in it may be discerned; from other spots more distant, even from the lawn, and from a shrubbery on the side of the lawn, it is distinctly visible, and always beautiful, whether it is seen alone, or with the bridge, with the town, with more or with less of

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Riding.

the rich meadows which lie along the banks of the Wye, to its junction three miles off with the Severn. A long sweep of that river also, its red cliffs, and the fine rising country in the counties of Somerset and Gloucester, generally terminate the prospect.

Most of the hills about Persfield are full of rocks; some are intermixed with hanging woods, and either advance a little before them, or retire within them, and are backed, or overhung, or separated by trees. In the walk to the cave, a long succession of them is frequently seen in perspective, all of a dark colour, and with wood in the intervals between them. In other parts the rocks are more wild and uncouth; and sometimes they stand on the tops of the highest hills; at other times down as low as the river; they are home-objects in one spot, and appear only in the back-ground of another.

The woods concur with the rocks to render the scenes of Persfield romantic: the place everywhere abounds with them; they cover the tops of the hills; they hang on the steeps; or they fill the depths of the valleys. In one place they front, in another they rise above, in another they sink below the point of view; they are seen sometimes retiring beyond each other, and darkening as they recede; and sometimes an opening between two is closed by a third at a distance beyond them. A point, called the *Lover's Leap*, commands a continued surface of the thickest foliage, which overspreads a vast hollow immediately underneath. Below the Chinese seat the course of the Wye is in the shape of a horse-shoe: it is on one side inclosed by a semicircular hanging wood; the direct steeps of a table-hill shut it in on the other; and the great rock fills the interval between them: in the midst of this rude scene lies the peninsula formed by the river, a mile at the least in length, and in the highest state of cultivation: near the isthmus the ground rises considerably, and thence descends in a broken surface, till it flattens to the water's edge at the other extremity. The whole is divided into corn-fields and pastures; they are separated by hedge-rows, coppices, and thickets; open clumps and single trees stand out in the meadows; and houses and other buildings, which belong to the farms, are scattered amongst them: nature so cultivated, surrounded by nature so wild, compose a most lovely landscape together.

The communications between these several points are generally by close walks; but the covert ends near the Chinese seat; and a path is afterwards conducted through the upper park to a rustic temple, which overlooks on one side some of the romantic views which have been described, and on the other the cultivated hills and valleys of Monmouthshire. To the rude and magnificent scenes of nature now succeeds a pleasant, fertile, and beautiful country, divided into inclosures, not covered with woods, nor broken by rocks and precipices, but only varied by easy swells and gentle declivities. Yet the prospect is not tame: the hills in it are high; and it is bounded by a vast sweep of the Severn, which is here visible for many miles together, and receives in its course the Wye and the Avon.

From the temple a road leads to the Windcliff, an eminence much above the rest, and commanding the whole in one view. The Wye runs at the foot of the hill; the peninsula lies just below; the deep bosom of

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Ridley. the semicircular hanging wood is full in sight; over part of it the great rock appears; all its base, all its accompaniments, are seen; the country immediately beyond it is full of lovely hillocks; and the higher grounds in the counties of Somerset and Gloucester rise in the horizon. The Severn seems to be, as it really is, above Chepstowe, three or four miles wide; below the town it spreads almost to a sea; the county of Monmouth is there the hither shore, and between its beautiful hills appear at a great distance the mountains of Brecknock and Glamorganshire. In extent, in variety, and grandeur, few prospects are equal to this. It comprehends all the noble scenes of Persfield, encompassed by some of the finest country in Britain. See GARDENING.

RIDLEY (Nicholas), bishop of London, and a martyr to the Reformation, was descended of an ancient family, and born in the beginning of the 16th century, at Wilmontwick in Northumberland. From the grammar-school at Newcastle upon Tyne, he was sent to Pembroke-hall in Cambridge, in the year 1518, where he was supported by his uncle Dr Robert Ridley, fellow of Queen's college. In 1522 he took his first degree in arts; two years after, was elected fellow; and, in 1525, he commenced master of arts. In 1527, having taken orders, he was sent by his uncle, for further improvement, to the Sorbonne at Paris; from thence he went to Louvain, and continued abroad till the year 1529. On his return to Cambridge, he was chosen under-treasurer of the university; and, in 1533, was elected senior proctor. He afterwards proceeded bachelor of divinity, and was chosen chaplain of the university, orator, and *magister glomeræ*. At this time he was much admired as a preacher and disputant. He lost his kind uncle in 1536; but was soon after patronised by Dr Cranmer, archbishop of Canterbury, who made him his domestic chaplain, and presented him to the vicarage of Herne in East Kent; where, we are told, he preached the doctrine of the Reformation. In 1540, having commenced doctor of divinity, he was made king's chaplain; and, in the same year, was elected master of his college in Cambridge. Soon after, Ridley was collated to a prebend in the church of Canterbury; and it was not long before he was accused in the bishop's court, at the instigation of bishop Gardiner, of preaching against the doctrine of the Six Articles. The matter being referred to Cranmer, Ridley was acquitted. In 1545, he was made a prebendary of Westminster abbey; in 1547 was presented, by the fellows of Pembroke-hall, to the living of Soham, in the diocese of Norwich; and the same year was consecrated bishop of Rochester. In 1550 he was translated to the see of London; in which year he was one of the commissioners for examining bishop Gardiner, and concurred in his deprivation. In the year 1552, our prelate returning from Cambridge, unfortunately for himself, paid a visit to the Princess, afterwards Queen Mary; to whom, prompted by his zeal for reformation, he expressed himself with too much freedom: for she was scarcely seated on the throne when Ridley was doomed a victim to her revenge. With Cranmer and Latimer he was burnt alive at Oxford, on the 16th of October 1555. He wrote, 1. A treatise concerning images in churches. 2. Brief declaration of the Lord's Supper.

3. Certain godly and comfortable conferences between bishop Ridley and Mr Hugh Latimer, during their imprisonment. 4. A comparison between the comfortable doctrine of the Gospel and the traditions of the Popish religion; and other works.

RIFLE, in gunnery. See GUNNERY, n° 36, *et seq.*

RIGA, a large, strong, populous, and rich town of the Russian empire, and capital of Livonia. It is a large trading place, and has a very considerable fortress; the trade is chiefly in corn, skins, leather, and naval stores. It was taken by the Russians in 1710, after they had blocked it up a long while, during which the inhabitants were afflicted with the plague. The castle is square, and defended by four towers and six bastions; besides which, it has a fine arsenal. The Protestants have still a handsome college here. It is seated on a large plain on the river Dwina. E. Long. 24. 25. N. Lat. 57. 0.

RIGADOON, a gay and brisk dance, borrowed originally from Provence in France, and performed in figure by a man and woman.

RIGGING of a *SHIP*, a general name given to all the ropes employed to support the masts, and to extend or reduce the sails, or arrange them to the disposition of the wind. The former, which are used to sustain the masts, remain usually in a fixed position, and are called *standing rigging*; such are the shrouds, stays, and back-stays. The latter, whose office is to manage the sails, by communicating with various blocks or pulleys, situated in different places of the masts, yards, shrouds, &c. are comprehended in the general term of *running rigging*; such are the braces, sheets, halliards, clue-lines, brails, &c.

In rigging a mast, the first thing usually fixed upon its head is a circular wreath or rope, called the *gromet*, or *collar*, which is firmly beat down upon the top of the hounds. The intent of this is to prevent the shrouds from being fretted or worn by the trestle-trees, or shoulders of the mast; after this are laid on the two pendants, from whose lower ends the main or fore tackles are suspended; and next, the shrouds of the starboard and larboard side, in pairs, alternately. The whole is covered by the stays, which are the largest ropes of the rigging.—When a yard is to be rigged, a gromet is also driven first on each of its extremities; next to this are fitted on the hofes, the braces, and lastly the lifts or top-sail sheet-blocks.

The principal objects to be considered in rigging a ship, appear to be strength, convenience, and simplicity: or, the properties of affording sufficient security to the masts, yards, and sails; of arranging the whole machinery in the most advantageous manner, to sustain the masts, and facilitate the management of the sails; and of avoiding perplexity, and rejecting whatever is superfluous or unnecessary. The perfection of this art, then, consists in retaining all those qualities, and in preserving a judicious medium between them. See SHIP-BUILDING.

RIGHT, in geometry, signifies the same with straight; thus, a straight line is called a *right* one.

RIGHT is a title conferred, 1. Together with *Reverend*, upon all bishops. 2. Together with *Honourable*, upon earls, viscounts, and barons. 3. By courtesy, together with *Honourable*, upon the sons of dukes, marquises,

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quisses, and the eldest sons of earls. 4. Together with *Honourable*, to the speaker of the house of commons; but to no other commoner excepting those who are members of his majesty's most honourable privy-council; and the three lord mayors of London, York, and Dublin, and the lord provost of Edinburgh, during their office. See *HONOURABLE* and *PROVOST*.

Hereditary RIGHT. See *HEREDITARY*.

The term
right ex-
plained.

* See Rec-
itude.

RIGHT is a word which, in the propriety of the English language, is used sometimes as an adjective and sometimes as a substantive. As an adjective it is nearly of the same import with *fit*, *suitable*, *becoming*, *proper*; and whilst it expresses a quality, it indicates a relation*. Thus, when we say that an action is *right*, we must not only know the nature of the action, but, if we speak intelligibly, must also perceive its relation to the end for which it was performed; for an action may be *right* with one end in view which would be *wrong* with another. The conduct of that general would be *right*, who, to save an army that could not be otherwise saved, should place a small detachment in a station where he knew they would all be inevitably cut off; but his conduct would be very *wrong* were he to throw away the life of a single individual for any purpose, however important, which he knew how to accomplish without such a sacrifice.

Many philosophers have talked of actions being *right* and *wrong* in the abstract without regard to their natural consequences; and converting the word into a substantive, they have fancied an eternal rule of *right*, by which the morality of human conduct is in every particular case to be tried. But in these phrases we can discover no meaning. Whatever is *right* must be so on *some account or other*; and whatever is *fit*, must be fit for *some purpose*. When he who rests the foundation of virtue on the *moral sense*, speaks of an action being *right*, he must mean that it is such as, through the medium of that sense, will excite complacency in the mind of the agent, and gain to him the general approbation of mankind. When he who rests moral obligation on the will of God, speaks of some actions as *right* and of others as *wrong*, he must mean that the former are agreeable to the divine will, however made known to men, and the latter disagreeable to it; and the man who deduces the laws of virtue from what he calls the *fitness of things*, must have some *end in view*, for which things are fit, and denominate actions *right* or *wrong* as they tend to promote or counteract that end.

But the word *right*, used as a substantive, has in common as well as in philosophical language a signification which at first view appears to be very different from this. It denotes a *just claim* or an *honest possession*. Thus we say, a father has a *right* to reverence from his children, a husband to the love and fidelity of his wife, and a king to the allegiance of his subjects. But if we trace these *rights* to their source, we shall find that they are all laws of moral obligation, and that they are called *rights* only because it is agreeable to the will of God, to the instinctive dictates of the moral sense, or to the fitness of things, if such a phrase has any meaning, that children reverence their parents, that wives love their husbands, and that subjects pay allegiance to their sovereign. This will be apparent to any man who shall put to himself such questions as these: "Why have parents a *right* to reverence from their children, husbands to the love of

their wives, and sovereigns to the allegiance of their subjects?" As these questions contain in them nothing absurd, it is obvious that they are each capable of a precise answer; but it is impossible to give to any of them an answer which shall have any meaning, and not imply that *right* and *obligation* are reciprocal, or, in other words, that wherever there is a *right* in one person, there is a corresponding *obligation* upon others. Thus to the question, "Why have parents a right to reverence from their children?" it may be answered, "because, under God, they were the authors of their childrens being, and protected them from danger, and furnished them with necessaries, when they were in a state so helpless that they could do nothing for themselves." This answer conveys no other meaning than that there is an obligation upon children, in return for benefits received, to reverence their parents. But what is the source of this obligation? It can only be the will of God, the moral sense, or the fitness of things.

This view of the nature of right will enable us to form a proper judgment of the assertion of a late writer, "that man has no rights." The arguments by which this apparent paradox is maintained, are not merely ingenious and plausible; they are absolutely conclusive. But then our philosopher, who never chooses to travel in the beaten track, takes the word *right* in a sense very different from that in which it has been used by all other men, and considers it as equivalent to *discretionary power*. "By the word *right* (says he) is understood a full and complete power of either doing a thing or omitting it, without the person's becoming liable to animadversion or censure from another; that is, in other words, without his incurring any degree of turpitude or guilt." In this sense of the word he affirms, and affirms truly, that a man has no rights, no discretionary power whatever, except in things of such total indifference as, whether "he shall sit on the right or on the left side of his fire, or dine on beef to day or to-morrow."

A proposition so evidently true as this stood not in need of argument to support it; but as his arguments are clearly expressed, and afford a complete confutation of some popular errors sanctioned by the respectable phrase *rights of man*, we shall give our readers an opportunity of studying them in his own words.

"Political society is founded on the principles of morality and justice. It is impossible for intellectual beings to be brought into coalition and intercourse without a certain mode of conduct, adapted to their nature and connection, immediately becoming a duty incumbent on the parties concerned. Men would never have associated if they had not imagined that, in consequence of that association, they would mutually conduce to the advantage and happiness of each other. This is the real purpose, the genuine basis, of their intercourse; and, as far as this purpose is answered, so far does society answer the end of its institution. There is only one postulate more that is necessary to bring us to a conclusive mode of reasoning upon this subject. Whatever is meant by the term *right*, there can neither be opposite rights, nor rights and duties hostile to each other. The rights of one man cannot clash with or be destructive of the rights of another: for this, instead of rendering the subject an important branch of truth and morality as the advocates of the rights of man certain-

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¹ Right. ly understand it to be, would be to reduce it to a heap of unintelligible jargon and inconsistency. If one man have a right to be free, another man cannot have a right to make him a slave; if one man have a right to inflict chastisement upon me, I cannot have a right to withdraw myself from chastisement; if my neighbour have a right to a sum of money in my possession, I cannot have a right to retain it in my pocket. It cannot be less incontrovertible, that I have no right to omit what my duty prescribes. From hence it inevitably follows that men have no rights.

"It is commonly said, 'that a man has a right to the disposal of his fortune, a right to the employment of his time, a right to the uncontrolled choice of his profession or pursuits.' But this can never be consistently affirmed till it can be shown that he has no duties, prescribing and limiting his mode of proceeding in all these respects.

"In reality, nothing can appear more wonderful to a careful inquirer, than that two ideas so incompatible as *man* and *rights* should ever have been associated together. Certain it is, that one of them must be utterly exclusive and annihilatory of the other. Before we ascribe rights to man, we must conceive of him as a being endowed with intellect, and capable of discerning the differences and tendencies of things. But a being endowed with intellect, and capable of discerning the differences and tendencies of things, instantly becomes a moral being, and has duties incumbent on him to discharge: and duties and rights, as has already been shown, are absolutely exclusive of each other.

"It has been affirmed by the zealous advocates of liberty, 'that princes and magistrates have no rights,' and no position can be more incontrovertible. There is no situation of their lives that has not its correspondent duties. There is no power intrusted to them that they are not bound to exercise exclusively for the public good. It is strange, that persons adopting this principle did not go a step farther, and perceive that the same restrictions were applicable to subjects and citizens."

³ Real and This reasoning is unanswerable; but it militates not against the *rights of man* in the usual acceptation of the words, which are never employed to denote discretionary power, but a just claim on the one hand, implying a corresponding obligation on the other. Whether the phrase be absolutely proper is not worth the debating: it is authorised by custom—the *jus et norma loquendi*—and is universally understood except by such as the demons of faction, in the form of paradoxical writers on political justice, have been able to mislead by sophistical reasonings.

⁴ Various. *Rights*, in the common acceptation of the word, are of various kinds: they are *natural* or *adventitious*, *alienable* or *unalienable*, *perfect* or *imperfect*, *particular* or *general*. See the article *LIBERTY*.

⁵ Natural rights. *Natural* rights are those which a man has to his life, limbs, and liberty; to the produce of his personal labour; to the use, in common with others, of air, light, and water, &c. That every man has a natural right or just claim to these things, is evident from their being absolutely necessary to enable him to answer that purpose, whatever it may be, for which he was made a living and a rational being. This shows undeniably, that the Author of his nature designed that he should have the use of them, and that the man who should wanton-

ly deprive him of any one of them, would be guilty of a breach of the divine law, as well as act inconsistently with the fitness of things in every sense in which that phrase can possibly be understood.

⁶ Adventitious rights. *Adventitious* rights are those which a king has over his subjects, a general over his soldiers, a husband to the person and affections of his wife, and which every man has to the greater part of his property. That the rights of the king and the general are adventitious, is universally admitted. The rights of property have been considered elsewhere (see *PROPERTY*); and though the human constitution shows sufficiently that men and women have a natural right to the use of each other, yet it is evident that the *exclusive* right of any one man to any one woman, and *vice versa*, must be an adventitious right: But the important question is, How are adventitious rights acquired?

⁷ How acquired. In answer to this question, the moralist who deduces the laws of virtue from the will of God, observes, that as God appears from his works to be a benevolent Being, who wills the happiness of all his creatures (see *METAPHYSICS*, n° 312.), he must of course will every thing which naturally tends to promote that happiness. But the existence of civil society evidently contributes in a great degree to promote the sum of human happiness (see *SOCIETY*); and therefore whatever is necessary for the support of civil society in general, or for the conduct of particular societies already established, must be agreeable to the will of God: But the allegiance of subjects to their sovereign, the obedience of soldiers to their leader, the protection of private property, and the fulfilling of contracts, are all absolutely necessary to the support of society; and hence the rights of kings, generals, husbands, and wives, &c. though adventitious, and immediately derived from human appointment, are not less sacred than natural rights, since they may all be ultimately traced to the same source. The same conclusion may easily be drawn by the philosopher, who rests moral obligation on the fitness of things or on a moral sense; only it must in each of these cases partake of the instability of its foundation.

⁸ Objection to some of these rights. To the sacredness of the rights of marriage, an author already quoted has lately urged some declamatory objections. "It is absurd (says he) to expect, that the inclinations and wishes of two human beings should coincide through any long period of time. To oblige them to act and to live together, is to subject them to some inevitable portion of thwarting, bickering, and unhappiness. This cannot be otherwise, so long as man has failed to reach the standard of absolute perfection. The supposition that I must have a companion for life, is the result of a complication of vices. It is the dictate of cowardice, and not of fortitude. It flows from the desire of being loved and esteemed for something that is not desert."

"But the evil of marriage, as it is practised in European countries, lies deeper than this. The habit is, for a thoughtless and romantic youth of each sex to come together, to see each other for a few times, and under circumstances full of delusion, and then to vow to each other eternal attachment. What is the consequence of this? In almost every instance they find themselves deceived. They are reduced to make the best of an irretrievable mistake. They are presented with the strongest imaginable temptation to become the dupes

of falsehood. They are led to conceive it their wisest policy to shut their eyes upon realities; happy if by any perversion of intellect they can persuade themselves that they were right in their first crude opinion of their companion.

"So long as two human beings are forbidden by positive institution to follow the dictates of their own mind, prejudice is alive and vigorous. So long as I seek to engross one woman to myself, and to prohibit my neighbour from proving his superior desert and reaping the fruits of it, I am guilty of the most odious of all monopolies. Over this imaginary prize men watch with perpetual jealousy; and one man will find his desires and his capacity to circumvent as much excited, as the other is excited to traverse his projects and frustrate his hopes. As long as this state of society continues, philanthropy will be crossed and checked in a thousand ways, and the still augmenting stream of abuse will continue to flow.

"The abolition of marriage will be attended with no evils. The intercourse of the sexes will fall under the same system as any other species of friendship. Exclusively of all groundless and obstinate attachments, it will be impossible for me to live in the world without finding one man of a worth superior to that of any other whom I have an opportunity of observing. To this man I shall feel a kindness in exact proportion to my apprehension of his worth. The case will be precisely the same with respect to the female sex; I shall assiduously cultivate the intercourse of that woman whose accomplishments shall strike me in the most powerful manner. 'But it may happen that other men will feel for her the same preference that I do.' This will create no difficulty. We may all enjoy her conversation; and we shall all be wise enough to consider the sensual intercourse as a very trivial object. This, like every other affair in which two persons are concerned, must be regulated in each successive instance by the unforced consent of either party. It is a mark of the extreme depravity of our present habits, that we are inclined to suppose the sensual intercourse anywise material to the advantages arising from the purest affection. Reasonable men now eat and drink, not from the love of pleasure, but because eating and drinking are essential to our healthful existence. Reasonable men then will propagate their species, not because a certain sensible pleasure is annexed to this action, but because it is right the species should be propagated; and the manner in which they exercise this function will be regulated by the dictates of reason and duty."

It is right then, according to this political innovator, that the species should be propagated, and reasonable men in his Utopian commonwealth would be incited by reason and duty to propagate them: but the way to fulfil this duty, experience, which is seldom at one with speculative reformation, has already demonstrated, not to consist in the promiscuous intercourse of several men with one woman, but in the fidelity of individuals of the two sexes to each other. Common prostitutes among us seldom prove with child; and the society of *Arrecoys* in Otahitee, who have completely divested themselves of what our author calls *prejudice*, and are by no means guilty of his *most odious of all monopolies*, are for the most part childless (see OTAHITEE). He seems to think that a state of equal property would ne-

cessarily destroy our relish for luxury, decrease our inordinate appetites of every kind, and lead us universally to prefer the pleasures of intellect to the pleasures of sense. But here again experience is against him. The *Arrecoys*, who have a property in their women perfectly equal, are the most luxurious and sensual wretches on the face of the earth; sensual indeed to a degree of which the most libidinous European can hardly form a conception.

By admitting it to be a duty to propagate the species, our author must necessarily grant that every thing is right which is requisite to the fulfilling of that duty, and the contrary wrong. If so, promiscuous concubinage is wrong, since we have seen, that by a law of nature it is incompatible with the duty; whence it follows on his own principles, that the sexual union by pairs must be right. The only question therefore to be decided between him and his opponents is, "Whether should that union be temporary or permanent?" And we think the following observations by Mr Paley sufficient to decide it to the conviction of every person not blinded by the rage of innovation.

"A lawgiver, whose counsels were directed by views of general utility, and obstructed by no local impediments, would make the marriage-contract indissoluble during the joint lives of the parties, for the sake of the following advantages: Such a union tends to preserve peace and concord between married persons, by perpetuating their common interest, and by inducing a necessity of mutual compliance. An earlier termination of it would produce a separate interest. The wife would naturally look forward to the dissolution of the partnership, and endeavour to draw to herself a fund against the time when she was no longer to have access to the same resources. This would beget peculation on one side, and mistrust on the other; evils which at present very little disturb the confidence of married life. The second effect of making the union determinable only by death, is not less beneficial. It necessarily happens, that adverse tempers, habits, and tastes, oftentimes meet in marriage. In which case, each party must take pains to give up what offends, and practice what may gratify, the other. A man and woman in love with each other do this insensibly: but love is neither general nor durable; and where that is wanting, no lessons of duty, no delicacy of sentiment, will go half so far with the generality of mankind and womankind as this one intelligible reflection, that they must each make the best of their bargain; and that seeing they must either both be miserable or both share in the same happiness, neither can find their own comfort but in promoting the pleasure of the other. These compliances, though at first extorted by necessity, become in time easy and mutual; and though less endearing than affluities which take their rise from affection, generally procure to the married pair a repose and satisfaction sufficient for their happiness."

So differently from our author does this judicious writer reason concerning the effects of a permanent union on the tempers of the married pair. Instead of subjecting them to some inevitable portion of thwarting, bickering, and unhappiness, it lays them, in his opinion, under the necessity of curbing their unruly passions, and acquiring habits of gentleness, forbearance, and peace. To this we may add, that both believing

Right. the children propagated during their marriage to be their own (a belief unattainable by the father in a state of promiscuous concubinage), they come by a natural process of the human passions (see *PASSION*) to love each other through the medium of their offspring. But if it be the duty of man to acquire a spirit first pure, then peaceable, gentle, and easy to be intreated, it must be agreeable to the will of God, and a branch of the fitness of things, that the sexual union last during the joint lives of the parties; and therefore the exclusive right of marriage, though adventitious, must be equally sacred with those which are natural.

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But to return from this digression, into which the importance of the subject led us, *rights*, besides being natural or adventitious, are likewise *alienable* or *unalienable*. Every man, when he becomes the member of a civil community, alienates a part of his natural rights. In a state of nature, no man has a superior on earth, and each has a right to defend his life, liberty, and property, by all the means which nature has put in his power. In civil society, however, these rights are all transferred to the laws and the magistrate, except in cases of such extreme urgency as leave not time for legal interposition. This single consideration is sufficient to show, that the right to civil liberty is alienable; though, in the vehemence of men's zeal for it, and in the language of some political remonstrances, it has often been pronounced to be an unalienable right. "The true reason (says Mr Paley) why mankind hold in detestation the memory of those who have sold their liberty to a tyrant is, that, together with their own, they sold commonly or endangered the liberty of others; of which they had certainly no right to dispose." The rights of a prince over his people, and of a husband over his wife, are generally and naturally unalienable.

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Perfect and
imperfect.

Another division of rights is into those which are perfect and those which are imperfect. Perfect rights are such as may be precisely ascertained and asserted by force, or in civil society by the course of law. To imperfect rights neither force nor law is applicable. A man's rights to his life, person, and property, are all perfect; for if any of these be attacked, he may repel the attack by instant violence, punish the aggressor by the course of law, or compel the author of the injury to make restitution or satisfaction. A woman's right to her honour is likewise perfect; for if she cannot otherwise escape, she may kill the ravisher. Every poor man has undoubted right to relief from the rich: but his right is imperfect, for if the relief be not voluntarily given, he cannot compel it either by law or by violence. There is no duty upon which the Christian religion puts a greater value than alms-giving; and every preacher of the gospel has an undoubted right to inculcate the practice of it upon his audience: but even this right is imperfect, for he cannot refuse the communion to a man merely on account of his illiberality to the poor, as he can to another for the neglect of any duty comprehended under the term justice. In elections or appointments to offices, where the qualifications are prescribed, the best qualified candidate has unquestionably a right to success; yet if he be rejected, he can neither seize the office by force, nor obtain redress at law. His right, therefore, is imperfect.

Here a question naturally offers itself to our consideration: "How comes a person to have a right to a thing,

and yet have no right to use the means necessary to obtain it?" The answer is, That in such cases the object or the circumstances of the right are so indeterminate, that the permission of force, even where the right is real and certain, would lead to force in other cases where there exists no right at all. Thus, though the poor man has a right to relief, who shall ascertain the mode, season, and quantum of it, or the person by whom it shall be administered? These things must be ascertained before the right to relief can be enforced by law; but to allow them to be ascertained by the poor themselves, would be to expose property to endless claims. In like manner, the comparative qualifications of the candidate must be ascertained, before he can enforce his right to the office; but to allow him to ascertain his qualifications himself, would be to make him judge in his own cause between himself and his neighbour.

Wherever the right is imperfect on one side, the corresponding obligation on the other must be imperfect likewise. The violation of it, however, is often not less criminal in a moral and religious view than of a perfect obligation. It is well observed by Mr Paley, that greater guilt is incurred by disappointing a worthy candidate of a place upon which perhaps his livelihood depends, and in which he could eminently serve the public, than by filching a book out of a library, or picking a pocket of a handkerchief. The same sentiment has been expressed by Mr Godwin, but in terms by much too strong, and such as show that he was not at the time complete master of his subject. "My neighbour (says he) has just as much right to put an end to my existence with dagger or poison, as to deny me that pecuniary assistance without which I must starve, or as to deny me that assistance without which my intellectual attainments, or my moral exertions, will be materially injured. He has just as much right to amuse himself with burning my house, or torturing my children upon the rack, as to shut himself up in a cell, careless about his fellow men, and to hide 'his talent in a napkin.'"

It is certainly true, that the man who should suffer another to starve for want of that relief which he *knew* that he *alone* could afford him, would be guilty of murder, and murder of the cruellest kind; but there is an immense difference between depriving society of one of its members, and with-holding from that member what might be necessary to enable him to make the greatest possible intellectual attainments. Newton might have been useful and happy though he had never been acquainted with the elements of mathematics; and the late celebrated Mr Fergusson might have been a valuable member of society, though he had never emerged from his original condition of a shepherd. The remainder of the paragraph is too absurd to require a formal confutation. Had our author, burying his talent in a napkin, shut himself up seven years ago in a cell, careless about his fellow men and *political justice*, he would have deprived the public of what he doubtless believes to be much useful instruction; but had he at that period amused himself with burning his neighbour's house, and torturing on the rack two or three children, he would have cut off, for any thing he could know, two or three future Newtons, and have himself been cut off by the insulted laws of his country. Now, without supposing the value

of ten Newtons to be equal to that of one Godwin, we are warranted to say, that however great his merits may be, they are not infinite, and that the addition of those of one Newton to them would undoubtedly increase their sum.

Rights, are particular or general. Particular rights are such as belong to certain individuals or orders of men, and not to others. The rights of kings, of masters, of husbands, of wives, and, in short, all the rights which originate in society, are particular. General rights are those which belong to the species collectively. Such are our rights to the vegetable produce of the earth, and to the flesh of animals for food, though about the origin of this latter right there has been much diversity of opinion, which we have noticed in another place. (See THEOLOGY, Part I. sect. 2d). If the vegetable produce of the earth be included under the general rights of mankind, it is plain that he is guilty of wrong who leaves any considerable portion of land waste merely for his own amusement: he is lessening the common stock of provision which Providence intended to distribute among the species. On this principle it would not be easy to vindicate certain regulations respecting game, as well as some other monopolies which are protected by the municipal laws of most countries. Mr Paley, by just reasoning, has established this conclusion, "that nothing ought to be made exclusive property which can be conveniently enjoyed in common." An equal division of land, however, the dream of some visionary reformers, would be injurious to the general rights of mankind, as it may be demonstrated, that it would lessen the common stock of provisions, by laying every man under the necessity of being his own weaver, tailor, shoemaker, smith, and carpenter, as well as ploughman, miller, and baker. Among the general rights of mankind is the right of *necessity*; by which a man may use or destroy his neighbour's property when it is absolutely necessary for his own preservation. It is on this principle that goods are thrown overboard to save the ship, and houses pulled down to stop the progress of a fire. In such cases, however, at least in the last, restitution ought to be made when it is in our power; but this restitution will not extend to the original value of the property destroyed, but only to what it was worth at the time of destroying it, which, considering its danger, might be very little.

RIGHTEOUSNESS, means justice, honesty, virtue, goodness, and amongst Christians is of exactly the same import with holiness, without which, we are told, no man shall see the Lord. The doctrine of the fall, and of redemption through Jesus Christ, has occasioned much disputation, and given rise to many singular notions in the world. The haughty philosopher, dissatisfied with mysteries, and with the humiliating doctrine of atonement by a crucified Saviour, has made a religion for himself, which he calls *rational Christianity*; and the enthusiast, by extracting doctrines from Scripture which are not contained in it, and which are repugnant to its spirit, has given too much countenance to this presumption. The doctrine of imputed righteousness, by which the merit of Christ is said to be imputed to us, appears to be of this number; and though it has been held by many good, and by some learned men, it is certainly in general unfriendly to virtue, as will be readily allowed by all who have conversed with the more ignorant sort of Methodists in England or Se-

ceders in Scotland. That it does not follow from the doctrine of the atonement, and consequently that it has no foundation in Scripture, will appear elsewhere. See THEOLOGY.

Bill of RIGHTS, in law, is a declaration delivered by the lords and commons to the prince and princess of Orange, 13th February 1688; and afterwards enacted in parliament, when they became king and queen. It sets forth, that king James did, by the assistance of divers evil counsellors, endeavour to subvert the laws and liberties of this kingdom, by exercising a power of dispensing with and suspending of laws; by levying money for the use of the crown by pretence of prerogative without consent of parliament; by prosecuting those who petitioned the king, and discouraging petitions; by raising and keeping a standing army in time of peace; by violating the freedom of election of members to serve in parliament; by violent prosecutions in the court of king's bench; and causing partial and corrupt jurors to be returned on trials, excessive bail to be taken, excessive fines to be imposed, and cruel punishments inflicted; all which were declared to be illegal. And the declaration concludes in these remarkable words: "And they do claim, demand; and insist upon, all and singular the premises, as their undoubted rights and liberties." And the act of parliament itself (1 W. & M. stat. 2. cap. 2.) recognizes "all and singular the rights and liberties, asserted and claimed in the said declaration, to be the true, ancient, indubitable rights of the people of this kingdom." See LIBERTY.

RIGIDITY, in physics, denotes a brittle hardness. It is opposed to ductility, malleability, and softness.

RIGOLL, or **REGALS**, a kind of musical instrument, consisting of several sticks bound together, only separated by beads. It is tolerably harmonious, being well struck with a ball at the end of a stick. Such is the account which Grassineau gives of this instrument. Skinner, upon the authority of an old English dictionary, represents it as a clavichord, or clavicord; possibly founding his opinion on the nature of the office of the tuner of the regals, who still subsists in the establishment of the king's chapel at St James's, and whose business is to keep the organ of the chapel royal in tune; and not knowing that such wind instruments as the organ need frequent tuning, as well as the clavichord and other stringed instruments. Sir Henry Spelman derives the word *rigoll* from the Italian *rigabello*, a musical instrument, anciently used in churches instead of the organ. Walther, in his description of the regal, makes it to be a reed-work in an organ, with metal and also wooden pipes and bellows adapted to it. And he adds, that the name of it is supposed to be owing to its having been presented by the inventor to some king.—From an account of the regal used in Germany, and other parts of Europe, it appears to consist of pipes and keys on one side, and the bellows and wind-chest on the other. We may add, that Lord Bacon (Nat. Hist. cent. ii. §. 102.) distinguishes between the regal and organ, in a manner which shows them to be instruments of the same class. Upon the whole, there is reason to conclude, that the regal or rigoll was a pneumatic, and not a stringed instrument.

Merfennus relates, that the Flemings invented an instrument, *les regales de bois*, consisting of 17 cylindrical

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pieces of wood, decreasing gradually in length, so as to produce a succession of tones and semitones in the diatonic series, which had keys, and was played on as a spinet; the hint of which, he says, was taken from an instrument in use among the Turks, consisting of 12 wooden cylinders, of different lengths, strung together, which being suspended and struck with a stick, having a ball at the end, produced music. Hawkins's Hist. Mus. vol. ii. p. 449.

RIGOR, in medicine, a convulsive shuddering from severe cold, an ague fit, or other disorder.

RIMINI, an ancient, populous, and handsome town of Italy, in Romagna, which is part of the territory of the church, with a bishop's see, an old castle, and a strong tower; as also many remains of antiquity, and very fine buildings. It is famous for a council in 1359, consisting of 400 bishops, who were all Arians except 20. It is seated in a fertile plain, at the mouth of the river Marecchia, on the gulph of Venice. E. Long. 12. 39. N. Lat. 44. 6.

RIND, the skin of any fruit that may be cut off or pared. Rind is also used for the inner bark of trees, or that whitish soft substance which adheres immediately to the wood. See PLANT.

RING, an ornament of gold and silver, of a circular figure, and usually worn on the finger.

The episcopal ring (which makes a part of the pontifical apparatus, and is esteemed a pledge of the spiritual marriage between the bishop and his church) is of very ancient standing. The fourth council of Toledo, held in 633, appoints, that a bishop condemned by one council, and found afterwards innocent by a second, shall be restored, by giving him the ring, staff, &c. From bishops, the custom of the ring has passed to cardinals, who are to pay a very great sum *pro jure annuli cardinalitii*.

RINGS. The antiquity of rings is known from Scripture and profane authors. Judah left his ring or signet with Tamar (Gen. xxxviii. 18). When Pharaoh committed the government of all Egypt to Joseph, he took his ring from his finger, and gave it to Joseph (Gen. xli. 42). After the victory that the Israelites obtained over the Midianites, they offered to the Lord the rings, the bracelets, and the golden necklaces, and the ear-rings, that they had taken from the enemy (Numb. xxxi. 50). The Israelitish women wore rings not only on their fingers, but also in their nostrils and their ears. St James distinguishes a man of wealth and dignity by the ring of gold that he wore on his finger (James ii. 2). At the return of the prodigal son, his father orders him to be dressed in a new suit of clothes, and to have a ring put upon his finger (Luke xv. 22). When the Lord threatened King Jeconiah with the utmost effects of his anger, he tells him, that though he wore the signet or ring upon his finger, yet he should be torn off (Jer. xxii. 24).

The ring was used chiefly to seal with; and the Scripture generally puts it in the hands of princes and great persons; as the king of Egypt, Joseph, Ahaz, Jezebel, King Ahasuerus, his favourite Haman, Mordecai, who succeeded Haman in his dignity, King Darius (1 Kings xxi. 8.; Esther iii. 10, &c.; Dan. vi. 17). The patents and orders of these princes were sealed with their rings or signets; and it was this that secured to them their authority and respect. See the article SEAL.

RING-Bone. See FARRIERY, Sect. xxxi.

RING-Ousel, in ornithology, a species of TURDUS.

RIO-GRANDE, a river of Africa, which runs from east to west through Negroland, and falls into the Atlantic ocean, in 11 degrees of latitude. Some take it to be a branch of the Niger, of which there is not the least proof.

Rio-Grande, a river of South America, in Brasil, which has its source in an unknown country: it crosses the captainship of Rio-Grande, and falls into the sea at Natal los Reyes.

Rio-Janeiro, a river of South America, which rises in the mountains west of Brasil, and running east through that country, falls into the Atlantic Ocean, in S. Lat. 23. 30. The province of Janeiro is one of the richest in Brasil; and produces gold, silver, diamonds, and other precious stones.

RIOM, a town of France, in Auvergne; seated on a hill, in so agreeable a country, that it is called the garden of Auvergne. E. Long. 3. 12. N. Lat. 45. 51.

RIOT, in law. The riotous assembling of 12 persons, or more, and not dispersing upon proclamation, was first made high treason by statute 3 & 4 Edw. VI. c. 5. when the king was a minor, and a change of religion to be effected: but that statute was repealed by statute 1 Mar. c. 1. among the other treasons created since the 25 Edw. III.; though the prohibition was in substance re-enacted, with an inferior degree of punishment, by statute 1 Mar. st. 2. c. 12. which made the same offence a single felony. These statutes specified and particularized the nature of the riots they were meant to suppress; as, for example, such as were set on foot with intention to offer violence to the privy-council, or to change the laws of the kingdom, or for certain other specific purposes; in which cases, if the persons were commanded by proclamation to disperse, and they did not, it was by the statute of Mary made felony, but within the benefit of clergy; and also the act indemnified the peace-officers and their assistants, if they killed any of the mob in endeavouring to suppress such riot. This was thought a necessary security in that sanguinary reign, when popery was intended to be re-established, which was like to produce great discontents: but at first it was made only for a year, and was afterwards continued for that queen's life. And, by statute 1 Eliz. c. 16. when a reformation in religion was to be once more attempted, it was revived and continued during her life also; and then expired. From the accession of James I. to the death of Queen Anne, it was never once thought expedient to revive it; but, in the first year of George I. it was judged necessary, in order to support the execution of the act of settlement, to renew it, and at one stroke to make it perpetual, with large additions. For, whereas the former acts expressly defined and specified what should be accounted a riot, the statute 1 Geo. I. c. 5. enacts, generally, that if any 12 persons are unlawfully assembled to the disturbance of the peace, and any one justice of the peace, sheriff, under-sheriff, or mayor of a town, shall think proper to command them by proclamation to disperse, if they contemn his orders and continue together for one hour afterwards, such contempt shall be felony without benefit of clergy. And farther, if the reading of the proclamation be by force opposed, or the reader be in any manner wilfully hindered

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hindered from the reading of it, such opposers and hinderers are felons without benefit of clergy; and all persons to whom such proclamation *ought to have been made*, and knowing of such hindrance, and not dispersing, are felons without benefit of clergy. There is the like indemnifying clause, in case any of the mob be unfortunately killed in the endeavour to disperse them; being copied from the act of queen Mary. And by a subsequent clause of the new act, if any person, so riotously assembled, begin even before proclamation to pull down any church, chapel, meeting-house, dwelling-house, or out-houses, they shall be felons without benefit of clergy.

Riots, routs, and unlawful assemblies, must have three persons at least to constitute them. An *unlawful assembly* is, when three, or more, do assemble themselves together to do an unlawful act, as to pull down inclosures, to destroy a warren or the game therein; and part without doing it, or making any motion towards it. A *rout* is where three or more meet to do an unlawful act upon a common quarrel, as forcibly breaking down fences upon a right claimed of common, or of way, and make some advances towards it. A *riot* is where three or more actually do an unlawful act of violence, either with or without a common cause or quarrel; as if they beat a man; or hunt and kill game in another's park, chase, warren, or liberty; or do any other unlawful act with force and violence; or even do a lawful act, as removing a nuisance, in a violent and tumultuous manner. The punishment of unlawful assemblies, if to the number of 12, we have just now seen, may be capital, according to the circumstances that attend it; but, from the number of three to eleven, is by fine and imprisonment only. The same is the case in riots and routs by the common law; to which the pillory in very enormous cases has been sometimes superadded. And by the statute 13 Hen. IV. c. 7. any two justices, together with the sheriff or under-sheriff of the county, may come with the *posse comitatus*, if need be, and suppress any such riot, assembly, or rout, arrest the rioters, and record upon the spot the nature and circumstances of the whole transaction; which record alone shall be a sufficient conviction of the offenders. In the interpretation of which statute it hath been holden, that all persons, noblemen and others, except women, clergymen, persons decrepit, and infants under 15, are bound to attend the justices in suppressing a riot, upon pain of fine and imprisonment; and that any battery, wounding, or killing the rioters, that may happen in suppressing the riot, is justifiable. So that our ancient law, previous to the modern riot act, seems pretty well to have guarded against any violent breach of the public peace; especially as any riotous assembly on a public or general account, as to redress grievances or pull down all inclosures, and also resisting the king's forces if sent to keep the peace, may amount to overt acts of high treason, by levying war against the king.

RIPEN, a town of Denmark, in north Jutland, and capital of a diocese of the same name, with a bishop's see, a good harbour, a castle, two colleges, and a public library. The tombs of several of the kings of Denmark are in the cathedral church, which is a very handsome structure. The harbour, which has contributed greatly to the prosperity of this place, is at a

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small distance, being seated at the mouth of the river Nipsaa, in a country which supplies the best beeves in Denmark. It is 45 miles north-west of Sleswick and 25 south-by-west of Wiburg. E. Long. 8. 94. N. Lat. 55. 25. The diocese is bounded on the north by those of Wiburg and Athuys, on the south by the duchy of Sleswick, and on the east and west by the sea.

Ripening
of Grain.

RIPENING of Grain, means its arriving to maturity. The following paper, which appeared in the first volume of the Transactions of the Royal Society of Edinburgh, may be worthy the attention of farmers in this country; where it frequently happens, from continued rains, that the corn is quite green when the frost sets in; in consequence of which, the farmers cut it down, without thinking it can possibly arrive at further maturity.

"Summer 1782 having been remarkably cold and unfavourable, the harvest was very late, and much of the grain, especially oats, was green even in October. In the beginning of October the cold was so great, that, in one night, there was produced on ponds near Kinneil, in the neighbourhood of Borrowstounness, ice three quarters of an inch thick. It was apprehended by many farmers, that such a degree of cold would effectually prevent the further filling and ripening of their corn. In order to ascertain this point, Dr Roebuck selected several stalks of oats, of nearly equal fullness, and immediately cut those which, on the most attentive comparison, appeared the best, and marked the others, but allowed them to remain in the field 14 days longer; at the end of which time they, too, were cut, and kept in a dry room for 10 days. The grains of each parcel were then weighed; when 11 of the grains which had been left standing in the field were found to be equal in weight to 30 of the grains which had been cut a fortnight sooner, though even the best of the grains were far from being ripe. During that fortnight (viz. from October 7th to October 21st) the average heat, according to Fahrenheit's thermometer, which was observed every day at eight o'clock in the morning and six in the evening, was a little above 43. Dr Roebuck observes, that this ripening and filling of corn in so low a temperature should be the less surprising to us, when we reflect, that seed-corn will vegetate in the same degree of heat; and he draws an important inference from his observations, viz. That farmers should be cautious of cutting down their unripe corn, on the supposition that in a cold autumn it could fill no more."

A writer in the Scots Magazine for June 1792, under the signature of *Agricola*, when speaking on this subject, adds the following piece of information, viz. "That grain cut down before it is quite ripe will grow or spring equally well as ripe and plump grain, provided it is properly preserved. I relate this from a fact, and also on the authority of one of the most judicious and experienced farmers in this island, William Craik of Arbigland, Esq; near Dumfries, who was taught by such a season as this threatens to prove. This being the case, every wise economical farmer will preserve his ripe and plump grain for bread, and sow the green and seemingly shrivelled grain, with a perfect conviction that the plants proceeding from such seed will yield as strong and thriving corn as what grows from plump seed. By this means the farmer will enjoy the double advantage of having the corn most productive in flour for bread, and his

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Risible.

his light shrivelled grain will go much farther in seed than the plump grain would do. I saw the experiment made on wheat which was so shrivelled that it was thought scarcely worth giving to fowls, and yet produced heavy large ears."

RIPHCEAN MOUNTAINS, are a chain of high mountains in Russia, to the north-east of the river Oby, where there are said to be the finest fables of the whole empire.

RIPHATH, or RIPHAT, second son of Gomer, and grandson of Japhet (Gen. x. 3. רִפְתָּ רִפְתָּ). In most copies he is called *Diphath* in the Chronicles (1 Chr. i. 6. דִּפְתָּ דִּפְתָּ). The resemblance of the two Hebrew letters ר *Resh* and ד *Daleth* is so much, that they are very often confounded. But, to the credit of the translators of our English version be it said, that in this instance, as well as in many others, they have restored the original reading, and rendered it Riphath. The learned are not agreed about the country that was peopled by the descendants of Riphath. The Chaldee and Arabic take it for France; Eusebius for the country of the Sauromatæ; the Chronicon Alexandrinum for that of the Garamantæ; Josephus for Paphlagonia. Mela assures us, that anciently the people of this province were called *Riphatai*, or Riphaces; and in Bithynia, bordering upon Paphlagonia, may be found the river Rhebeus, a people called *Rhebantes*, and a canton of the same name. These reasons have prevailed with Bochart to believe, that Riphath peopled Paphlagonia. Others think he peopled the Montes Riphei; and this opinion seems the most reasonable to us, because the other sons of Gomer peopled the northern countries towards Scythia, and beyond the Euxine sea.

RISIBLE, any thing capable of exciting laughter.

Ludicrous is a general term, signifying, as may appear from its derivation, what is playfome, sportive, or jocular. *Ludicrous* therefore seems the genus, of which *risible* is a species, limited as above to what makes us laugh.

However easy it may be, concerning any particular object, to say whether it be risible or not, it seems difficult, if at all practicable, to establish any general character, by which objects of that kind may be distinguished from others. Nor is that a singular case; for, upon a review, we find the same difficulty in most of the articles already handled. There is nothing more easy, viewing a particular object, than to pronounce that it is beautiful or ugly, grand or little: but were we to attempt general rules for ranging objects under different classes according to these qualities, we should be much gravelled. A separate cause increases the difficulty of distinguishing risible objects by a general character: all men are not equally affected by risible objects, nor the same man at all times; for in high spirits a thing will make him laugh outright, which will scarce provoke a smile in a grave mood. Risible objects, however, are circumscribed within certain limits. No object is risible but what appears slight, little, or trivial; for we laugh at nothing that is of importance to our own interest or to that of others. A real distress raises pity, and therefore cannot be risible; but a slight or imaginary distress, which moves not pity, is risible. The adventure of the fulling-mills in Don Quixote, is extremely risible; so is the scene where Sancho, in a dark night, tumbling into a pit, and at-

taching himself to the side by hand and foot, hangs there in terrible dismay till the morning, when he discovers himself to be within a foot of the bottom. A nose remarkably long or short, is risible; but to want it altogether, so far from provoking laughter, raises horror in the spectator. With respect to works both of nature and of art, none of them are risible but what are out of rule; some remarkable defect or excess, a very long visage, for example, or a very short one. Hence nothing just, proper, decent, beautiful, proportioned, or grand, is risible.

Even from this slight sketch it will be readily conjectured, that the emotion raised by a risible object is of a nature so singular, as scarce to find place while the mind is occupied with any other passion or emotion; and the conjecture is verified by experience; for we scarce ever find that emotion blended with any other. One emotion we must except; and that is, contempt raised by certain improprieties: every improper act inspires us with some degree of contempt for the author; and if an improper act be at the same time risible to provoke laughter, of which blunders and absurdities are noted instances, the two emotions of contempt and of laughter unite intimately in the mind, and produce externally what is termed a *laugh of derision* or of *scorn*. Hence objects that cause laughter may be distinguished into two kinds: they are either *risible* or *ridiculous*. A risible object is mirthful only; a ridiculous object is both mirthful and contemptible. The first raises an emotion of laughter that is altogether pleasant; the pleasant emotion of laughter raised by the other, is blended with the painful emotion of contempt; and the mixed emotion is termed *the emotion of ridicule*. The pain a ridiculous object gives me, is repented and punished by a laugh of derision. A risible object, on the other hand, gives me no pain: it is altogether pleasant by a certain sort of titillation, which is expressed externally by mirthful laughter. See RIDICULE.

Risible objects are so common, and so well understood, that it is unnecessary to consume paper or time upon them. Take the few following examples:

Falstaff. I do remember him at Clement's inn, like a man made after supper of a cheese-paring. When he was naked, he was for all the world like a forked radish, with a head fantastically carved upon it with a knife.

Second part, Henry IV. act. 3. sc. 5.

The foregoing is of disproportion. The following examples are of slight or imaginary misfortunes.

Falstaff. Go fetch me a quart of sack, put a toast in't. Have I liv'd to be carried in a basket, like a barrow of butcher's offal, and to be thrown into the Thames! Well, if I be served such another trick, I'll have my brains ta'en out and butter'd, and give them to a dog for a new-year's gift. The rogues slighted me into the river with as little remorse as they would have drown'd a bitch's blind puppies, fifteen i'th' litter; and you may know by my size that I have a kind of alacrity in sinking; if the bottom were as deep as hell, I should down. I had been drown'd, but that the shore was shelvy and shallow; a death that I abhor: for the water swells a man; and what a thing should I have been when I had been swell'd? I should have been a mountain of mummy.

Merry Wives of Windsor, act 3. sc. 15.

Falstaff.

Falstaff. Nay, you shall hear, Master Brook, what I have suffer'd to bring this woman to evil for your good. Being thus cramm'd in the basket, a couple of Ford's knaves, his hinds, were call'd forth by their mistress, to carry me in the name of foul clothes to Datchet-lane. They took me on their shoulders, met the jealous knave their master in the door, who ask'd them once or twice what they had in their basket. I quak'd for fear, lest the lunatic knave would have search'd it; but Fate, ordaining he should be a cuckold, held his hand. Well, on went he for a search, and away went I for foul clothes. But mark the sequel, Master Brook. I suffer'd the pangs of three egregious deaths: first, an intolerable fright, to be detected by a jealous rotten bell-weather; next, to be compass'd like a good bilbo, in the circumference of a peck, hilt to point, heel to head; and then to be stopt in, like a strong distillation, with stinking clothes that fretted in their own grease. Think of that, a man of my kidney; think of that, that am as subject to heat as butter; a man of continual dissolution and thaw; it was a miracle to 'scape suffocation. And in the height of this bath, when I was more than half stew'd in grease, like a Dutch dish, to be thrown into the Thames, and cool'd glowing hot, in that surge, like a horse-shoe; think of that; hissing hot; think of that, Mr Brook.

Merry Wives of Windsor, act 3. sc. 17.

RITE, among divines, denotes the particular manner of celebrating divine service in this or that country.

RITORNELLO, or REPEAT, in music, the burden of a song, or the repetition of the first or other verses of a song at the end of each couplet.

RITTERHUSIUS (Conrad), a learned German civilian, born at Brunswick in 1560. He was professor of civil law at Altdorf, and published a variety of works, particularly as a civilian; together with an edition of Oppian in Greek and Latin; he was moreover an excellent critic; his notes upon many eminent authors having been inserted in the best editions of them. He died in 1613.

RITUAL, a book directing the order and manner to be observed in performing divine service in a particular church, diocese, or the like. The ancient heathens had also their rituals, which contained their rites and ceremonies to be observed in building a city, consecrating a temple or altar, in sacrificing, and deifying, in dividing the curiæ, tribes, centuries, and in general, in all their religious ceremonies. There are several passages in Cato's books, *De re Rustica*, which may give us some idea of the rituals of the ancients.

RIVAL, a term applied to two or more persons who have the same pretensions; and which is properly applied to a competitor in love, and figuratively to an antagonist in any other pursuit.

Rite
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River.

R I V E R,

IS a current of fresh water, flowing in a BED or CHANNEL from its source to the sea.

The term is appropriated to a considerable collection of waters, formed by the conflux of two or more Brooks, which deliver into its channel the united streams of several RIVULETS, which have collected the supplies of many RILLS trickling down from numberless springs, and the torrents which carry off from the sloping grounds the surplus of every shower.

Rivers form one of the chief features of the surface of this globe, serving as voiders of all that is immediately redundant in our rains and springs, and also as boundaries and barriers, and even as highways, and in many countries as plentiful storehouses. They also fertilise our soil by laying upon our warm fields the richest mould, brought from the high mountains, where it would have remained useless for want of genial heat.

Being such interesting objects of attention, every branch acquires a proper name, and the whole acquires a sort of personal identity, of which it is frequently difficult to find the principle; for the name of the great body of waters which discharges itself into the sea is traced backwards to one of the sources, while all the contributing streams are lost, although their waters form the chief part of the collection. And sometimes the feeder in which the name is preserved is smaller than others which are united to the current, and which like a rich but ignoble alliance lose their name in that of the more illustrious family. Some rivers indeed are respectable even at their birth, coming at once in force from some great lake. Such is the Rio de la Plata, the river St Laurence, and the mighty streams which issue in all directions from the Baical lake. But,

like the sons of Adam, they are all of equal descent, and should take their name from one of the feeders of these lakes. This is indeed the case with a few, such as the Rhone, the Rhine, the Nile. These, after having mixed their waters with those of the lake, resume their appearance and their name at its outlet.

But in general their origin and progress, and even Origin and the features of their character, bear some resemblance progress similar to (as has been prettily observed by Pliny) to the life of the life of man. The river springs from the earth; but its origin is in heaven. Its beginnings are insignificant, and its infancy is frivolous; it plays among the flowers of a meadow; it waters a garden, or turns a little mill. Gathering strength in its youth, it becomes wild and impetuous. Impatient of the restraints which it still meets with in the hollows among the mountains, it is restless and fretful; quick in its turnings, and unsteady in its course. Now it is a roaring cataract, tearing up and overturning whatever opposes its progress, and it shoots headlong down from a rock; then it becomes a fullen and gloomy pool, buried in the bottom of a glin. Recovering breath by repose, it again dashes along, till tired of the uproar and mischief, it quits all that it has swept along, and leaves the opening of the valley strewn with the rejected waste. Now, quitting its retirement, it comes abroad into the world, journeying with more prudence and discretion through cultivated fields, yielding to circumstances, and winding round what would trouble it to overwhelm or remove. It passes through the populous cities and all the busy haunts of man, tendering its services on every side, and becomes the support and ornament of the country. Now increased by numerous alliances, and advanced

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5
The religious re-
spect for
rivers

6

The effect
of grati-
tude and
affection.

in its course of existence, it becomes grave and stately in its motions, loves peace and quiet; and in majestic silence rolls on its mighty waters, till it is laid to rest in the vast abyss.

The philosopher, the real lover of wisdom, feels much to admire in the economy and mechanism of running waters; and there are few operations of nature which give him more opportunities of remarking the nice adjustment of the most simple means for attaining many purposes of most extensive beneficence. All mankind seem to have felt this. The heart of man is ever open (unless perverted by the habits of selfish indulgence and arrogant self-conceit) to impressions of gratitude and love. He who ascribes the religious principle (debased, though it be by the humbling abuses of superstition) to the workings of fear alone, may betray the slavish meanness of his own mind, but gives a very unfair and a false picture of the hearts of his neighbours. Lucretius was but half a philosopher when he penned his often-quoted apophthegm. Indeed his own invocations show how much the animal was blended with the sage.

We apprehend, that whoever will read with an honest and candid mind, unbiassed by licentious wishes, the accounts of the ancient superstitions, will acknowledge that the amiable emotions of the human soul have had their share in creating the numerous divinities whose worship filled up their kalendars. The sun and the host of heaven have in all ages and nations been the objects of a sincere worship. Next to them, the rivers seem to have attracted the grateful acknowledgments of the inhabitants of the adjacent countries. They have everywhere been considered as a sort of tutelar divinities; and each little district, every retired valley, had its river god, who was preferred to all others with a partial fondness. The expostulation of Naaman the Syrian, who was offended with the prophet for enjoining him to wash in the river Jordan, was the natural effusion of this attachment. "What! (said he), are not Abana and Pharphat, rivers of Damascus, more excellent than all the waters of Judæa? Might I not wash in them and be clean? So he went away wroth."

In those countries particularly, where the rural labours, and the hopes of the shepherd and the husbandman, were not so immediately connected with the approach and recess of the sun, and depended rather on what happened in a far distant country by the falls of periodical rains or the melting of collected snows, the Nile, the Ganges, the Indus, the river of Pegu, were the sensible agents of nature in procuring to the inhabitants of their fertile banks all their abundance, and they became the objects of grateful veneration. Their sources were sought out with anxious care even by conquering princes; and when found, were universally worshipped with the most affectionate devotion. These remarkable rivers, so eminently and so palpably beneficent, preserve to this day, amidst every change of habit, and every increase of civilization and improvement, the fond adoration of the inhabitants of those fruitful countries through which they hold their stately course, and their waters are still held sacred. No progress of artificial refinement, not all the corruption of luxurious sensuality, has been able to eradicate this plant of native growth from the heart of man. The sentiment is

congenial to his nature, and therefore it is universal; and we could almost appeal to the feelings of every reader, whether he does not perceive it in his own breast. Perhaps we may be mistaken in our opinion in the case of the corrupted inhabitants of the populous and busy cities, who are habituated to the fond contemplation of their own individual exertions as the sources of all their hopes. Give the shoemaker but leather and a few tools, and he defies the powers of nature to disappoint him; but the simpler inhabitants of the country, the most worthy and the most respectable part of every nation, after equal, perhaps greater exertion both of skill and of industry, are more accustomed to resign themselves to the great ministers of Providence, and to look up to heaven for the "early and the latter rains," without which all their labours are fruitless.

—extrema per illos

Numenque excedens terris vestigia fecit.

And among the husbandmen and the shepherds of all nations and ages, we find the same fond attachment to their springs and rivulets.

Fortunate senex, hic inter flumina nota

Et fontes sacros frigus captabis opacum.

was the mournful ejaculation of poor Melibæus. We hardly know a river of any note in our own country whose source is not looked on with some respect.

We repeat our assertion, that this worship was the offspring of affection and gratitude, and that it is giving a very unfair and false picture of the human mind to ascribe these superstitions to the working of fear alone. These would have represented the river-gods as seated on ruins, brandishing rooted-up trees, with angry looks, pouring out their sweeping torrents. But no such thing. The lively imagination of the Greeks felt, and expressed with an energy unknown to all other nations, every emotion of the human soul. They figured the Naiads as beautiful nymphs, patterns of gentleness and of elegance. They are represented as partially attached to the children of men; and their interference in human affairs is always in acts of kind assistance and protection. They resemble, in this respect, the rural deities of the northern nations, the fairies, but without their caprices and resentments. And, if we attend to the descriptions and representations of their RIVER-Gods, beings armed with power, an attribute which slavish fear never fails to couple with cruelty and vengeance, we find the same expression of affectionate trust and confidence in their kind dispositions. They are generally called by the respectable but endearing name of *father*. "*Da Tyberi pater*," says Virgil. Mr Bruce says that the Nile at its source is called the *abay* or "*father*."—We observe this word, or its radix, blended with many names of rivers of the east; and think it probable that when our traveller got this name from the inhabitants of the neighbourhood, they applied to the stream what is meant to express the tutelar or presiding spirit. The river-gods are always represented as venerable old men, to indicate their being coeval with the world. But it is always a *cruda viridisque senectus*, and they are never represented as oppressed with age and decrepitude. Their beards are long and flowing, their looks placid, their attitude easy, reclined on a bank, covered, as they are crowned, with never-fading sedges and bulrushes, and leaning on their urns, from which they pour out their plentiful and fertilizing streams.—

Mr

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Mr Bruce's description of the sources of the Nile, and of the respect paid to the sacred waters, has not a frowning feature; and the hospitable old man, with his fair daughter Irepone, and the gentle priesthood which peopled the little village of Geesh, forms a contrast with the neighbouring Galla (among whom a military leader was called the *lamb*, because he did not murder pregnant women), which very distinctly paints the inspiring principle of this superstition. Pliny says (VIII. 8.) that at the source of the Clitumnus there is an ancient temple highly respected. The presence and the power of the divinity are expressed by the fates which stand in the vestibule.—Around this temple are several little chapels, each of which covers a sacred fountain; for the Clitumnus is the father of several little rivers which unite their streams with him. At some distance below the temple is a bridge which divides the sacred waters from those which are open to common use. No one must presume to set his foot in the streams above this bridge; and to step over any of them is an indignity which renders a person infamous. They can only be visited in a consecrated boat. Below the bridge we are permitted to bathe, and the place is incessantly occupied by the neighbouring villagers. (See also *Vitius Sequest. Orbelini*, p. 101—103. and 221—223. also *Sueton. Caligula*, c. 43. *Virg. Georg. II.* 146.)

What is the cause of all this? The Clitumnus flows (near its source) through the richest pastures, through which it was carefully distributed by numberless drains; and these nourished cattle of such spotless whiteness and extraordinary beauty, that they were sought for with eagerness over all Italy, as the most acceptable victims in their sacrifices. Is not this superstition then an effusion of gratitude?

Such are the dictates of kind-hearted nature in our breasts, before it has been vitiated by vanity and self-conceit, and we should not be ashamed of feeling the impression. We hardly think of making any apology for dwelling a little on this incidental circumstance of the superstitious veneration paid to rivers. We cannot think that our readers will be displeased at having agreeable ideas excited in their minds, being always of opinion that the torch of true philosophy will not only enlighten the understanding, but also warm and cherish the affections of the heart.

With respect to the origin of rivers, we have very little to offer in this place. It is obvious to every person, that besides the torrents which carry down into the rivers what part of the rains and melted snows is not absorbed by the soil or taken up by the plants which cover the earth, they are fed either immediately or remotely by the springs. A few remarkable streams rush at once out of the earth in force, and must be considered as the continuation of subterraneous rivers, whose origin we are therefore to seek out; and we do not know any circumstance in which their first beginnings differ from those of other rivers, which are formed by the union of little streams and rills, each of which has its own source in a spring or fountain. This question, therefore, What is the process of nature, and what are the supplies which fill our springs? will be treated of under the word SPRING.

Whatever be the source of rivers, it is to be met with in almost every part of the globe. The crust of

earth with which the rocky framing of this globe is covered is generally stratified. Some of these strata are extremely pervious to water, having but small attraction for its particles, and being very porous. Such is the quality of gravelly strata in an eminent degree. Other strata are much more firm, or attract water more strongly, and refuse it a passage. This is the case with firm rock and with clay. When a stratum of the first kind has one of the other immediately under it, the water remains in the upper stratum, and bursts out wherever the sloping sides of the hills cut off the strata, and this will be in the form of a trickling spring, because the water in the porous stratum is greatly obstructed in its passage towards the outlet. As this irregular formation of the earth is very general, we must have springs, and of course rivers or rivulets, in every corner where there are high grounds.

Rivers flow from the higher to the low grounds. It is the arrangement of this elevation which distributes them over the surface of the earth. And this appears to be accomplished with considerable regularity; and, except the great desert of Kobi on the confines of Chinese Tartary, we do not remember any very extensive track of ground that is deprived of those channels for voiding the superfluous waters; and even there they are far from being redundant.

The course of rivers give us the best general method for judging of the elevation of a country. Thus it appears that Savoy and Switzerland are the highest grounds of Europe, from whence the ground slopes in every direction. From the Alps proceed the Danube and the Rhine, whose courses mark the two great valleys, into which many lateral streams descend. The Po also and the Rhone come from the same head, and with a steeper and shorter course find their way to the sea through valleys of less breadth and length. On the west side of the valleys of the Rhine and the Rhone the ground rises pretty fast, so that few tributary streams come into them from that side; and from this gentle elevation France slopes to the westward. If a line, nearly straight, but bending a little to the northward, be drawn from the head of Savoy and Switzerland all the way to Solikamskoy in Siberia, it will nearly pass through the most elevated part of Europe; for in this track most of the rivers have their rise. On the left go off the various feeders of the Elbe, the Oder, the Wesel, the Niemen, the Duna, the Neva, the Dwina, the Petzora. On the right, after passing the feeders of the Danube, we see the sources of the Sereth and Pruth, the Dniester, the Bog, the Dnieper, the Don, and the mighty Volga. The elevation, however, is extremely moderate; and it appears from the levels taken with the barometer by the Abbé Chappe d'Auteroche, that the head of the Volga is not more than 470 feet above the surface of the ocean. And we may observe here by the bye, that its mouth, where it discharges its waters into the Caspian sea, is undoubtedly lower, by many feet, than the surface of the ocean. See PNEUMATICS, n° 277. Spain and Finland, with Lapland, Norway, and Sweden, form two detached parts, which have little symmetry with the rest of Europe.

A chain of mountains begins in Nova Zembla, and stretches due south to near the Caspian Sea, dividing Europe from Asia. About three or four degrees north of

of the Caspian sea it bends to the south-east, traverses western Tartary, and passing between the Tengis and Zai-zan lakes, it then branches to the east and south. The eastern branch runs to the shores of Korea and Kamtschatka. The southern branch traverses Turkestan and Thibet, separating them from India, and at the head of the kingdom of Ava joins an arm stretching from the great eastern branch, and here forms the centre of a very singular radiation. Chains of mountains issue from it in every direction. Three or four of them keep very close together, dividing the continent into narrow slips, which have each a great river flowing in the middle, and reaching to the extreme points of Malacca, Cambodia, and Cochinchina. From the same central point proceeds another great ridge due east, and passes a little north of Canton in China. We called this a singular centre: for though it sends off so many branches, it is by no means the most elevated part of the continent. In the triangle which is included between the first southern ridge (which comes from between the lakes Tanges and Zai-zan), the great eastern ridge, and its branch which almost unites with the southern ridge, lies the Boutan, and part of Tibet, and the many little rivers which occupy its surface, flow southward and eastward, uniting a little to the north of the centre often mentioned, and then pass through a gorge eastward into China. And it is farther to be observed, that these great ridges do not appear to be seated on the highest parts of the country; for the rivers which correspond to them are at no great distance from them, and receive their chief supplies from the other sides. This is remarkably the case with the great Oby, which runs almost parallel to the ridge from the lakes to Nova Zembla. It receives its supplies from the east, and indeed it has its source far east. The highest grounds (if we except the ridges of mountains which are boundaries) of the continent seem to be in the country of the Calmucs, about 95° east from London, and latitude 43° or 45° north. It is represented as a fine though sandy country, having many little rivers which lose themselves in the sand, or end in little salt lakes. This elevation stretches north-east to a great distance; and in this track we find the heads of the Irtysh, Selenga, and Tunguskaia (the great feeders of the Oby), the Olenitz, the Lena, the Yana, and some other rivers which all go off to the north. On the other side we have the great river Amur, and many smaller rivers, whose names are not familiar. The Hoangho, the great river of China, rises on the south side of the great eastern ridge we have so often mentioned. This elevation, which is a continuation of the former, is somewhat of the same complexion, being very sandy, and at present is a desert of prodigious extent. It is described, however, as interspersed with vast tracks of rich pasture; and we know that it was formerly the residence of a great nation, who came south, by the name of *Turks*, and possessed themselves of most of the richest kingdoms of Asia. In the south-western extremity of this country are found remains not only of barbaric magnificence, but even of cultivation and elegance. It was a profitable privilege granted by Peter the Great to some adventurers to search these sandy deserts for remains of former opulence, and many pieces of delicate workmanship (tho' not in a style which we would admire) in gold and sil-

ver were found. Vaults were found buried in the sand filled with written papers, in a character wholly unknown; and a wall was discovered extending several miles, built with hewn stone, and ornamented with cornice and battlements. But we are forgetting ourselves, and return to the consideration of the distribution of the rivers on the surface of the earth. A great ridge of mountains begins at the south-east corner of the Euxine Sea, and proceeds eastward, ranging along the south side of the Caspian, and still advancing unites with the mountains first mentioned in Thibet, sending off some branches to the south, which divide Persia, India, and Thibet. From the south side of this ridge flow the Euphrates, Tigris, Indus, Ganges, &c. and from the north the ancient Oxus and many unknown streams.

There is a remarkable circumstance in this quarter of the globe. Although it seems to be nearest to the greatest elevations, it seems also to have places of the greatest depression. We have already said that the Caspian Sea is lower than the ocean. There is in its neighbourhood another great basin of salt water, the lake Aral, which receives the waters of the Oxus or Gihon, which were said to have formerly run into the Caspian Sea. There cannot therefore be a great difference in the level of these two basins; neither have they any outlet, tho' they receive great rivers. There is another great lake in the very middle of Persia, the Zare or Zara, which receives the river Hindemend, of near 250 miles length, besides other streams. There is another such in Asia Minor. The sea of Sodom and Gomorrah is another instance. And in the high countries we mentioned, there are many small salt lakes, which receive little rivers, and have no outlet. The lake Zara in Persia, however, is the only one which indicates a considerable hollow of the country. It is now ascertained by actual survey, that the sea of Sodom is considerably higher than the Mediterranean. This feature is not, however, peculiar to Asia. It obtains also in Africa, whose rivers we now proceed to mention.

Of them, however, we know very little. The Nile 11
Of Afr indeed is perhaps better known than any river out of Europe; and of its source and progress we have given a full account in a separate article. See NILE.

By the register of the weather kept by Mr Bruce at Gondar in 1770 and 1771, it appears that the greatest rains are about the beginning of July. He says that at an average each month after June it doubles its rains. The calish or canal is opened at Cairo about the 9th of August, when the river has risen 14 peeks (each 21 inches), and the waters begin to decrease about the 10th of September. Hence we may form a conjecture concerning the time which the water employs in coming from Abyssinia. Mr Bruce supposes it 9 days, which supposes a velocity not less than 14 feet in a second; a thing past belief, and inconsistent with all our notions. The general slope of the river is greatly diminished by several great cataracts; and Mr Bruce expressly says, that he might have come down from Sennaar to the cataracts of Syene in a boat, and that it is navigable for boats far above Sennaar. He came from Syene to Cairo by water. We apprehend that no boat would venture down a stream moving even six feet in a second, and none could row up if the velocity was three feet. As the waters begin to decrease about the 10th of

Sep-

September, we must conclude that the water then flowing past Cairo had left Abyssinia when the rains had greatly abated. Judging in this way, we must still allow the stream a velocity of more than six feet. Had the first swell at Cairo been noticed in 1770 or 1771, we might have guessed better. The year that Thevenot was in Egypt, the first swell of 8 peeks was observed Jan. 28. The calish was opened for 14 peeks on August 14th, and the waters began to decrease on September 23d, having risen to $21\frac{2}{3}$ peeks. We may suppose a similar progress at Cairo corresponding to Mr Bruce's observations at Gondar, and date every thing five days earlier.

We understand that some of our gentlemen stationed far up the Ganges have had the curiosity to take notes of the swellings of that river, and compare them with the overflowings at Calcutta, and that their observations are about to be made public. Such accounts are valuable additions to our practical knowledge, and we shall not neglect to insert the information in some kindred article of this work.

The same mountains which attract the tropical vapours, and produce the fertilizing inundations of the Nile, perform the same office to the famous Niger, whose existence has often been accounted fabulous, and with whose course we have very little acquaintance. The researches of the gentlemen of the African association render its existence no longer doubtful, and have greatly excited the public curiosity. For a farther account of its track, see NIGER.

From the great number, and the very moderate size, of the rivers which fall into the Atlantic Ocean all the way south of the Gambia, we conclude that the western shore is the most elevated, and that the mountains are at no great distance inland. On the other hand, the rivers at Melinda and Sofala are of a magnitude which indicate a much longer course. But of all this we speak with much uncertainty.

The frame-work (so to call it) of America is better known, and is singular.

A chain of mountains begins, or at least is found, in longitude 110° west of London, and latitude 40° north, on the northern confines of the kingdom of Mexico, and stretching southward through that kingdom, forms the ridge of the neck of land which separates North from South America, and keeping almost close to the shore, ranges along the whole western coast of South America, terminating at Cape Horn. In its course it sends off branches, which after separating from it for a few leagues, rejoin it again, inclosing valleys of great extent from north to south, and of prodigious elevation. In one of these, under the equatorial sun, stands the city of Quito, in the midst of extensive fields of barley, oats, wheat, and gardens, containing apples, pears, and gooseberries, and in short all the grains and fruits of the cooler parts of Europe; and although the vine is also there in perfection, the olive is wanting. Not a dozen miles from it in the low countries, the sugar-cane, the indigo, and all the fruits of the torrid zone, find their congenial heat, and the inhabitants swelter under a burning sun. At as small a distance on the other hand tower aloft the pinacles of Pichincha, Corambourou, and Chemboracão, crowned with never melting snows.

The individual mountains of this stupendous range not only exceed in height all others in the world (if

we except the Peak of Teneriffe, Mount Ætna, and Mount Blanc); but they are set down on a base incomparably more elevated than any other country. They cut off therefore all communication between the Pacific Ocean and the inland continent; and no rivers are to be found on the west coast of South America which have any considerable length of course or body of waters. The country is drained, like Africa, in the opposite direction. Not 100 miles from the city of Lima, the capital of Peru, which lies almost on the sea shore, and just at the foot of the high Cordilleras, arises out of a small lake the Maragnon or Amazon's river, which, after running northward for about 100 miles, takes an easterly direction, and crosses nearly the broadest part of South America, and falls into the great western ocean at Para, after a course of not less than 3500 miles. In the first half of its descent it receives a few middle-sized rivers from the north, and from the south it receives the great river Combos, springing from another little lake not 50 miles distant from the head of the Maragnon, and inclosing between them a wide extent of country. Then it receives the Yuta, the Yuerva, the Cuchivara; and Parana Mire, each of which is equal to the Rhine; and then the Madeira, which has flowed above 1300 miles. At their junction the breadth is so great, that neither shore can be seen by a person standing up in a canoe; so that the united stream must be about 6 miles broad. In this majestic form it rolls along at a prodigious rate through a flat country, covered with impenetrable forests, and most of it as yet untrodden by human feet. Mr Condamine, who came down the stream, says, that all is silent as the desert, and the wild beasts and numberless birds crowd round the boat, eyeing it as some animal of which they did not seem afraid. The bed was cut deep through an equal and yielding soil, which seemed rich in every part; if he could judge by the vegetation, which was rank in the extreme. What an addition this to the possible population of this globe! A narrow slip along each bank of this mighty river would equal in surface the whole of Europe, and would probably exceed it in general fertility: and although the velocity in the main stream was great, he observed that it was extremely moderate, nay almost still, at the sides; so that in those parts where the country was inhabited by men, the Indians paddled up the river with perfect ease. Boats could go from Para to near the mouth of the Madeira in 38 days, which is near 1200 miles.

Mr Condamine made an observation during his passage down the Maragnon, which is extremely curious and instructive, although it puzzled him very much. He observed that the tide was sensible at a vast distance from the mouth: It was very considerable at the junction of the Madeira; and he supposes that it might have been observed much farther up. This appeared to him very surprising, because there could be no doubt but that the surface of the water there was higher by a great many feet than the surface of the flood of the Atlantic ocean at the mouth of the river. It was therefore very natural for him to ascribe the tide in the Maragnon to the immediate action of the moon on its waters; and this explanation was the more reasonable, because the river extends in the direction of terrestrial longitude, which by the Newtonian theory is most favourable to the production of a tide. Journeying as he did

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did in an Indian canoe, we cannot suppose that he had much leisure or convenience for calculations, and therefore are not surprised that he did not see that even this circumstance was of little avail in so small or shallow a body of water. He carefully noted, however, the times of high and low water as he passed along. When arrived at Para, he found not only that the high water was later and later as we are farther from the mouth, but he found that at one and the same instant there were several points of high water between Para and the confluence of the Madeira, with points of low water intervening. This conclusion was easily drawn from his own observations, although he could not see at one instant the high waters in different places. He had only to compute the time of high water at a particular spot, on the day he observed it at another; allowing, as usual, for the moon's change of position. The result of his observations therefore was, that the surface of the river was not an inclined plane whose slope was lessened by the tide of flood at the mouth of the river, but that it was a waving line, and that the propagation of the tide up the river was nothing different from the propagation of any other wave. We may conceive it clearly, though imperfectly, in this way. Let the place be noted where the tide happens 12 hours later than at the mouth of the river. It is evident that there is also a tide at the very mouth at the same instant; and, since the ocean tide had withdrawn itself during the time that the former tide had proceeded so far up the river, and the tide of ebb is successively felt above as well as the tide of flood, there must be a low water between these two high waters.

Newton had pointed out this curious fact, and observed that the tide at London-Bridge, which is 43 feet above the sea, is not the same with that at Gravelend, but the preceding tide (See *Phil. Transf.* 67.) This will be more particularly insisted on in another place.

Not far from the head of the Maragnon, the Cordilleras send off a branch to the north-east, which reaches and ranges along the shore of the Mexican Gulf, and the Rio Grande de Sta Martha occupies the angle between the ridges.

Another ridge ranges with interruptions along the east coast of Terra Firma, so that the whole waters of this country are collected into the Oronoko. In like manner the north and east of Brasil are hemmed in by mountainous ridges, through which there is no considerable passage; and the ground sloping backwards, all the waters of this immense track are collected from both sides by many considerable rivers into the great river Paraguay, or Rio de la Plata, which runs down the middle of this country for more than 1400 miles, and falls into the sea through a vast mouth in latitude 35°.

Thus the whole of South America seems as if it had been formerly surrounded by a mound, and been a great basin. The ground in the middle, where the Parana, the Madeira, and the Plata, take their rise, is an immense marsh, uninhabitable for its exhalations, and quite impervious in its present state.

The manner in which the continent of North America is watered, or rather drained, has also some peculiarities. By looking at the map, one will observe first of all a general division of the whole of the best known

part into two, by the valleys in which the beds of the river St Laurence and Mississippi are situated. The head of this is occupied by a singular series of fresh water seas or lakes, viz. the lake Superior and Michigan, which empty themselves into lake Huron by two cataracts. This again runs into lake Erie by the river Detroit, and the Erie pours its waters into the Ontario by the famous fall of Niagara; and from the Ontario proceeds the great river St Laurence.

The ground to the south-west of the lakes Superior and Erie is somewhat lower, and the middle of the valley is occupied by the Mississippi and the Missouri, which receive on both sides a number of smaller streams, and having joined, proceed to the south, under the name Mississippi. In latitude 37, this river receives into its bed the Ohio, a river of equal magnitude, and the Cherokee river, which drains all the country lying at the back of the United States, separated from them by the ranges of the Apalachian mountains. The Mississippi is now one of the chief rivers on the globe, and proceeds due south, till it falls into the Mexican bay through several shifting mouths, which greatly resemble those of the Danube and the Nile, having run above 1200 miles.

The elevated country between this bed of the Mississippi and St Laurence and the Atlantic ocean is drained on the east side by a great number of rivers, some of which are very considerable, and of long course; because instead of being nearly at right angles to the coast, as in other countries, they are in a great measure parallel to it. This is more remarkably the case with Hudson's river, the Delaware, Patomack, Rapahanoc, &c. Indeed the whole of North America seems to consist of ribs or beams laid nearly parallel to each other from north to south, and the rivers occupy the interstices. All those which empty themselves into the bay of Mexico are parallel and almost perfectly straight, unlike what are seen in other parts of the world. The westernmost of them all, the North River, as it is named by the Spaniards, is nearly as long as the Mississippi.

We are very little informed as yet of the distribution of rivers on the north-west coast of America, or the course of those which run into Hudson's and Baffin's bay.

The Maragnon is undoubtedly the greatest river in the world, both as to length of run and the vast body of water which it rolls along. The other great rivers succeed nearly in the following order.

Maragnon,	Amur,
Senegal,	Oronoko.
Nile,	Ganges,
St Laurence,	Euphrates,
Hoangho,	Danube,
Rio de la Plata,	Don,
Yenisey,	Indus,
Mississippi,	Dnieper,
Volga,	Duina,
Oby,	&c.

We have been much assisted in this account of the course of rivers, and their distribution over the globe, by a beautiful planisphere or map of the world published by Mr Bode astronomer royal at Berlin. The ranges of mountains are there laid down with philosophical discernment and precision; and we recommend it to the

notice

theory. notice of our geographers. We cannot divine what has caused Mr Buffon to say that the course of most rivers is from east to west or from west to east. No physical point of his system seems to require it, and it needs only that we look at his own map to see its falsity. We should naturally expect to find the *general* course of rivers nearly perpendicular to the line of sea-coast; and

we find it so; and the chief exceptions are in opposition to Mr Buffon's assertion. The structure of America is so particular, that *very few* of its rivers have their general course in this direction. We proceed now to consider the motion of rivers; a subject which naturally resolves itself into two parts, *theoretical* and *practical*.

Theory.

PART I. THEORY OF THE MOTION OF RIVERS AND CANALS.

¹⁴ importance the doctrine of the motion of rivers and canals. THE importance of this subject needs no commentary. Every nation, every country, every city, is interested in it. Neither our wants, our comforts, nor our pleasures, can dispense with an ignorance of it. We must conduct their waters to the centre of our dwellings; we must secure ourselves against their ravages; we must employ them to drive those machines which, by compensating for our personal weakness, make a few able to perform the work of thousands; we employ them to water and fertilize our fields, to decorate our mansions, to cleanse and embellish our cities, to preserve or extend our demesnes, to transport from county to county every thing which necessity, convenience, or luxury, has rendered precious to man: for these purposes we must confine and govern the mighty rivers, we must preserve or change the beds of the smaller streams, draw off from them what shall water our fields, drive our machines, or supply our houses. We must keep up their waters for the purposes of navigation, or supply their places by canals; we must drain our fens, and defend them when drained; we must understand their motions, and their mode of secret, flow, but unceasing action; that our bridges, our wharfs, our dikes, may not become heaps of ruins. Ignorant how to proceed in these daily recurring cases, how often do we see projects of high expectation and heavy expence fail of their object, leaving the state burdened with works not only useless but frequently hurtful?

with anxiety and hesitation: for we have not yet acquired principles of theory, and experiments have not yet been collected and published, by which an empirical practice might be safely formed. Many experiments of inestimable value are daily made; but they remain with their authors, who seldom have either leisure, ability, or generosity, to add them to the public stock.

The motion of waters has been really so little investigated as yet, that hydraulics may still be called a new ¹⁵ as yet in its infancy. This science We have merely skimmed over a few common notions concerning the motions of water; and the mathematicians of the first order seem to have contented themselves with such views as allowed them to entertain themselves with elegant applications of calculus. This, however, has not been their fault. They rarely had any opportunity of doing more, for want of a knowledge of facts. They have made excellent use of the few which have been given them; but it required much labour, great variety of opportunity, and great expence, to learn the multiplicity of things which are combined even in the simplest cases of water in motion. These are seldom the lot of the mathematician; and he is without blame when he enjoys the pleasures within his reach, and cultivates the science of geometry in its most abstracted form. Here he makes a progress which is the boast of human reason, being almost insured from error by the intellectual simplicity of his subject. But when we turn our attention to material objects, and without knowing either the size and shape of the elementary particles, or the laws which nature has prescribed for their action, presume to foresee their effects, calculate their exertions, direct their actions, what must be the consequence? Nature shows her independence with respect to our notions, and, always faithful to the laws which are enjoined, and of which we are ignorant, she never fails to thwart our views, to disconcert our projects, and render useless all our efforts.

To wish to know the nature of the elements is vain, ¹⁶ Proper and our gross organs are insufficient for the study. To suppose what we do not know, and to fancy shapes and fizes at will; this is to raise phantoms, and will produce a system, but will not prove a foundation, for any science. But to interrogate Nature herself, study the laws which she so faithfully observes, catch her, as we say, in the fact, and thus wrest from her the secret; this is the only way to become her master, and it is the only procedure consistent with good sense. And we see, that soon after Kepler detected the laws of the planetary motions, when Galileo discovered the uniform acceleration of gravity, when Pascal discovered the pressure of the atmosphere, and Newton discovered the laws of attraction and the track of a ray of light; astronomy, mechanics, hydrostatics, chemistry, optics, quickly became

Theory. came bodies of sound doctrine; and the deductions from their respective theories were found fair representations of the phenomena of nature. Whenever a man has discovered a law of nature, he has laid the foundation of a science, and he has given us a new mean of subjecting to our service some element hitherto independent: and so long as groups of natural operations follow a route which appears to us whimsical, and will not admit our calculations, we may be assured that we are ignorant of the principle which connects them all, and regulates their procedure.

17
Our ignorance of the general laws of this motion,

This is remarkably the case with several phenomena in the motions of fluids, and particularly in the motion of water in a bed or conduit of any kind. Although the first geniuses of Europe have for this century past turned much of their attention to this subject, we are almost ignorant of the general laws which may be observed in their motions. We have been able to select very few points of resemblance, and every case remains nearly an individual. About 150 years ago we discovered, by experience only, the quantity and velocity of water issuing from a small orifice, and, after much labour, have extended this to any orifice; and this is almost the whole of our confidential knowledge. But as to the uniform course of the streams which water the face of the earth, and the maxims which will certainly regulate this agreeably to our wishes, we are in a manner totally ignorant. Who can pretend to say what is the velocity of a river of which you tell him the breadth, the depth, and the declivity? Who can say what swell will be produced in different parts of its course, if a dam or weir of given dimensions be made in it, or a bridge be thrown across it? or how much its waters will be raised by turning another stream into it, or sunk by taking off a branch to drive a mill? Who can say with confidence what must be the dimensions or slope of this branch, in order to furnish the water that is wanted, or the dimensions and slope of a canal which shall effectually drain a fenny district? Who can say what form will cause or will prevent the undermining of banks, the forming of elbows, the pooling of the bed, or the deposition of sands? Yet these are the most important questions.

18
And the causes of it.

The causes of this ignorance are the want or uncertainty of our principles; the falsity of our only theory, which is belied by experience; and the small number of proper observations or experiments, and difficulty of making such as shall be serviceable. We have, it is true, made a few experiments on the efflux of water from small orifices, and from them we have deduced a sort of theory, dependant on the fall of heavy bodies and the laws of hydrostatic pressure. Hydrostatics is indeed founded on very simple principles, which give a very good account of the laws of the quiescent equilibrium of fluids, in consequence of gravity and perfect fluidity. But by what train of reasoning can we connect these with the phenomena of the uniform motion of the waters of a river or open stream, which can derive its motion only from the slope of its surface, and the modifications of this motion or its velocity only from the width and depth of the stream? These are the only circumstances which can distinguish a portion of a river from a vessel of the same size and shape, in which, however, the water is at rest. In both, gravity is the sole cause of pressure and motion; but there must be some

circumstance peculiar to running waters which modifies the exertions of this active principle, and which, when discovered, must be the basis of hydraulics, and must oblige us to reject every theory founded on fancied hypotheses, and which can only lead to absurd conclusions: and surely absurd consequences, when legitimately drawn, are complete evidence of improper principles.

When it was discovered experimentally, that the velocities of water issuing from orifices at various depths under the surface were as the square roots of those of the depths, and the fact was verified by repeated experiments, this principle was immediately and without modification applied to every motion of water. Mariotte, Varignon, Guglielmini, made it the basis of complete systems of hydraulics, which prevail to this day, after having received various amendments and modifications. The same reasoning obtains through them all, though frequently obscured by other circumstances, which are more perspicuously expressed by Guglielmini in his Fundamental Theorems.

He considers every point P (fig. 1.) in a mass of fluid as an orifice in the side of a vessel, and conceives the particle as having a tendency to move with the same velocity with which it would issue from the orifice. Therefore, if a vertical line APC be drawn thro' that point, and if this be made the axis of a parabolic ADE, of which A at the surface of the fluid is the vertex, and AB (four times the height through which a heavy body would fall in a second) is the parameter, the velocity of this particle will be represented by the ordinate PD of this parabola; that is, PD is the space which it would uniformly describe in a second.

From this principle is derived the following theory of running waters.

Let DC (fig. 2.) be the horizontal bottom of a reservoir, to which is joined a sloping channel CK of uniform breadth, and let AB be the surface of the standing water in the reservoir. Suppose the vertical plane BC pierced with an infinity of holes, through each of which the water issues. The velocity of each filament will be that which is acquired by falling from the surface AB. The filament C, issuing with this velocity, will then glide down the inclined plane like any other heavy body; and (by the common doctrine of the motion down an inclined plane) when it has arrived at F, it will have the same velocity which it would have acquired by falling through the height OF, the point O being in the horizontal plane AB produced. The same may be said of its velocity when it arrives at H or K. The filament immediately above C will also issue with a velocity which is in the subduplicate ratio of its depth, and will then glide down above the first filament. The same may be affirmed of all the filaments; and of the superficial filament, which will occupy the surface of the descending stream.

From this account of the genesis of a running stream of water, we may fairly draw the following consequences.

1. The velocity of any particle R, in any part of the stream, is that acquired by falling from the horizontal plane AN.
2. The velocity at the bottom of the stream is everywhere greater than anywhere above it, and is least of all at the surface.
3. The velocity of the stream increases continually as the stream recedes from its source.

4. The depths EF, GH, &c. in different parts of the stream, will be nearly in the inverse subduplicate ratio of the depths under the surface AN: for since the same quantity of water is running through every section EF and GH, and the channel is supposed of uniform breadth, the depth of each section must be inversely as the velocity of the water passing through it. This velocity is indeed different in different filaments of the section; but the mean velocity in each section is in the subduplicate ratio of the depth of the filament under the surface AB. Therefore the stream becomes more shallow as it recedes from the source; and in consequence of this the difference between LH and MG continually diminishes, and the velocities at the bottom and surface of the stream continually approach to equality, and at a great distance from the source they differ insensibly.

5. If the breadth of the stream be contracted in any part, the depth of the running water will be increased in that part, because the same quantity must still pass through; but the velocity at the bottom will remain the same, and that at the surface will be less than it was before; and the area of the section will be increased on the whole.

6. Should a sluice be put across the stream, dipping a little into the water, the water must immediately rise on the upper side of the sluice till it rises above the level of the reservoir, and the smallest immersion of the sluice will produce this effect. For by lowering the sluice, the area of the section is diminished, and the velocity cannot be increased till the water heap up to a greater height than the surface of the reservoir, and this acquires a pressure which will produce a greater velocity of efflux through the orifice left below the sluice.

7. An additional quantity of water coming into this channel will increase the depth of the stream, and the quantity of water which it conveys; but it will not increase the velocity of the bottom filaments, unless it comes from a higher source.

All these consequences are contrary to experience, and show the imperfection, at least, of the explanation.

The third consequence is of all the most contrary to experience. If any one will but take the trouble of following a single brook from its source to the sea, he will find it most rapid in its beginnings among the mountains, gradually slackening its pace as it winds among the hills and gentler declivities, and at last creeping slowly along through the flat grounds, till it is checked and brought to rest by the tides of the ocean.

Nor is the second consequence more agreeable to observation. It is universally found, that the velocity of the surface in the middle of the stream is the greatest of all, and that it gradually diminishes from thence to the bottom and sides.

And the first consequence, if true, would render the running waters on the surface of this earth the instruments of immediate ruin and devastation. If the waters of our rivers, in the cultivated parts of a country, which are two, three, and four hundred feet lower than their sources, run with the velocity due to that height, they would in a few minutes lay the earth bare to the very bones.

The velocities of our rivers, brooks, and rills, being so greatly inferior to what this theory assigns to them

the other consequences are equally contrary to experience. When a stream has its section diminished by narrowing the channel, the current increases in depth, and this is always accompanied by an increase of velocity through the whole of the section, and most of all at the surface; and the area of the section does not increase, but diminishes, all the phenomena, thus contradicting in every circumstance the deduction from the theory; and when the section has been diminished by a sluice let down into the stream, the water gradually heaps up on the upper side of the sluice, and, by its pressure, produces an acceleration of the stream below the sluice, in the same way as if it were the beginning of a stream, as explained in the theory. The velocity now is composed of the velocity preserved from the source and the velocity produced by this subordinate accumulation; and this accumulation and velocity continually increase, till they become such that the whole supply is again discharged through this contracted section: any additional water not only increases the quantity carried along the stream, but also increases the velocity, and therefore the section does not increase in the proportion of the quantity.

It is surprising that a theory really founded on a conceit, and which in every the most familiar and obvious circumstance is contradicted by facts, should have met with so much attention. That Varignon should immediately catch at this notion of Guglielmini, and make it the subject of many elaborate analytical memoirs, is not to be wondered at. This author only wanted *donner prise au calcul*; and it was a usual joke among the academicians of Paris, when any new theorem was invented, *donnons le à Varignon à généraliser*. But his numerous theorems and corollaries were adopted by all, and still make the substance of the present systems of hydraulics. Gravefande, Muschenbroek, and all the elementary treatises of natural philosophy, deliver no other doctrines; and Belidor, who has been considered as the first of all the scientific engineers, details the same theory in his great work the *Architecte Hydraulique*.

Guglielmini was, however, not altogether the dupe of his own ingenuity. He was not only a pretty good mathematician, but an assiduous and sagacious observer. He had applied his theory to some important cases which occurred in the course of his profession as inspector of the rivers and canals in the Milanese, and to the course of the Danube; and could not but perceive that great corrections were necessary for making the theory quadrate in some tolerable manner with observation; and he immediately saw that the motion was greatly obstructed by inequalities of the canal, which gave to the contiguous filaments of the stream transverse motions, which thwarted and confused the regular progress of the rest of the stream, and thus checked its general progress. These obstructions, he observed, were most effectual in the beginning of its course, while yet a small rill, running among stones, and in a very unequal bed. The whole stream being small, the inequalities bore a great proportion to it, and thus the general effect was great. He also saw that the same causes (these transverse motions produced by the unequal bottom) chiefly affected the contiguous filaments, and were the reasons why the velocity at the sides and bottom was so much diminished as to be less than the superficial velocity, and that even this might come to be

Theory. diminished by the same cause. For he observed, that the general stream of a river is frequently composed of a sort of boiling or tumbling motion, by which masses of water are brought up to the surface and again descend. Every person must recollect such appearances in the freshes of a muddy river; and in this way Guglielmini was enabled to account in some measure for the disagreement of his theory with observation.

Mariotte had observed the same obstructions even in the smoothest glass pipes. Here it could not be ascribed to the checks occasioned by transverse motions. He therefore ascribed it to friction, which he supposed to diminish the motion of fluid bodies in the same manner as of solids: and he thence concludes, that the filaments which immediately rub on the sides of the tube have their velocity gradually diminished; and that the filaments immediately adjoining to these, being thus obliged to pass over them or outstrip them, rub upon them, and have their own velocity diminished in like manner, but in a smaller degree; and that the succeeding filaments towards the axis of the tube suffer similar but smaller diminutions. By this means the whole stream may come to have a smaller velocity; and at any rate the medium velocity by which the quantity discharged is determined, is smaller than it would have been independent of friction.

Guglielmini adopted this opinion of Mariotte, and in his next work on the Motion of Rivers, considered this as the chief cause of the retardation; and he added a third circumstance, which he considered as of no less consequence, the viscosity or tenacity of water. He observes that syrup, oil, and other fluids, where this viscosity is more remarkable, have their motions prodigiously retarded by it, and supposes that water differs from them only in the degree in which it possesses this quality: and he says, that by this means not only the particles which are moving more rapidly have their motions diminished by those in their neighbourhood which move slower, but that the filaments also which would have moved more slowly are accelerated by their more active neighbours; and that in this manner the superficial and inferior velocities are brought nearer to an equality. But this will never account for the universal fact, that the superficial particles are the swiftest of all. The superficial particles, says he, acquire by this means a greater velocity than the parabolic law allows them; the medium velocity is often in the middle of the depth; the numerous obstacles, continually multiplied and repeated, cause the current to lose the velocity acquired by the fall; the slope of the bottom then diminishes, and often becomes very small, so that the force remaining is hardly able to overcome the obstacles which are still repeated, and the river is reduced almost to a state of stagnation. He observes, that the Rheno, a river of the Milanese, has near its mouth a slope of no more than 50', which he considers as quite inadequate to the task; and here he introduces another principle, which he considers as an essential part of the theory of open currents. This is, that there arises from the very depth of the stream a propelling force which restores a part of the lost velocity. He offers nothing in proof of this principle, but uses it to account for and explain the motion of waters in horizontal canals. The principle has been adopted by the numerous Italian writers on hydraulics, and, by various contrivances, interwoven with the para-

bolic theory, as it is called, of Guglielmini. Our reader may see it in various modifications in the *Idrostatica e Idraulica* of P. Lecchi, and in the *Sperienze Idrauliche* of Michelotti. It is by no means distinct either in its origin or in the manner of its application to the explanation of phenomena, and seems only to serve for giving something like consistency to the vague and obscure discussions which have been published on this subject in Italy. We have already remarked, that in that country the subject is particularly interesting, and has been much commented upon. But the writers of England, France, and Germany, have not paid so much attention to it, and have more generally occupied themselves with the motion of water in close conduits, which seem to admit of a more precise application of mathematical reasoning.

Some of those have considered with more attention the effects of friction and viscosity. Sir Isaac Newton, with his usual penetration, had seen distinctly the manner in which it behoved these circumstances to operate. He had occasion, in his researches into the mechanism of the celestial motions, to examine the famous hypothesis of Descartes, that the planets were carried round the sun by fluid vortices, and saw that there would be no end to uncertainty and dispute till the *modus operandi* of these vortices was mechanically considered. He therefore employed himself in the investigation of the manner in which the acknowledged powers of natural bodies, acting according to the received laws of mechanics, could produce and preserve these vortices, and restore that motion which was expended in carrying the planets round the sun. He therefore, in the second book of the *Principles of Natural Philosophy*, gives a series of beautiful propositions, viz. 51, 52, &c. with their corollaries, showing how the rotation of a cylinder or sphere round its axis in the midst of a fluid will excite a vortical motion in this fluid; and he ascertains with mathematical precision the motion of every filament of this vortex.

He sets out from the supposition that this motion is excited in the surrounding stratum of fluid in consequence of a want of perfect lubricity, and assumes as an hypothesis, that the initial resistance (or diminution of the motion of the cylinder) which arises from this want of lubricity, is proportional to the velocity with which the surface of the cylinder is separated from the contiguous surface of the surrounding fluid, and that the whole resistance is proportional to the velocity with which the parts of the fluid are mutually separated from each other. From this, and the equality of action and re-action, it evidently follows, that the velocity of any stratum of the vortex is the arithmetical medium between the velocities of the strata immediately within and without it. For the intermediate stratum cannot be in equilibrio, unless it is as much pressed forward by the superior motion of the stratum within it, as it is kept back by the slower motion of the stratum without it.

This beautiful investigation applies in the most perfect manner to every change produced in the motion of a fluid filament, in consequence of the viscosity and friction of the adjoining filaments; and a filament proceeding along a tube at some small distance from the sides has, in like manner, a velocity which is the medium between those of the filaments immediately surrounding it.

theory. it. It is therefore a problem of no very difficult solution to assign the law by which the velocity will gradually diminish as the filament recedes from the axis of a cylindrical tube. It is somewhat surprising that so neat a problem has never occupied the attention of the mathematicians during the time that these subjects were so assiduously studied; but so it is, that nothing precise has been published on the subject. The only approach to a discussion of this kind, is a Memoire of Mr Pitot, read to the academy of Paris in 1726, where he considers the velocity of efflux through a pipe. Here, by attending to the comparative superiority of the *quantity of motion* in large pipes, he affirms, that the total diminutions arising from friction will be (*ceteris paribus*) in the inverse ratio of the diameters. This was thankfully received by other writers, and is now a part of our hydraulic theories. It has not, however, been attended to by those who write on the motion of rivers, though it is evident that it is applicable to these with equal propriety; and had it been introduced, it would at once have solved all their difficulties, and particularly would have shown how an almost imperceptible declivity would produce the gentle motion of a great river, without having recourse to the unintelligible principle of Guglielmini.

Mr Couplet made some experiments on the motion of the water in the great main pipes of Versailles, in order to obtain some notions of the retardations occasioned by friction. They were found prodigious; but were so irregular, and unsuceptible of reduction to any general principle, (and the experiments were indeed so few that they were unfit for this reduction), that he could establish no theory.—What Mr Belidor established on them, and makes a sort of system to direct future engineers, is quite unworthy of attention.

Upon the whole, this branch of hydraulics, although of much greater practical importance than the conduct of water in pipes, has never yet obtained more than a vague, and, we may call it, slovenly attention from the mathematicians; and we ascribe it to their not having taken the pains to settle its first principles with the same precision as had been done in the other branch. They were, from the beginning, satisfied with a sort of applicability of mathematical principles, without ever making the application. Were it not that some would accuse us of national partiality, we would ascribe it to this, that Newton had not pointed out the way in this as in the other branch. For any intelligent reader of the performances on the motions of fluids in close vessels, will see that there has not a principle, nay hardly a step of investigation, been added to those which were used or pointed out by Sir Isaac Newton. He has nowhere touched this question, the motion of water in an open canal. In his theories of the tides, and of the propagation of waves, he had an excellent opportunity for giving at once the fundamental principles of motion in a free fluid whose surface was not horizontal. But, by means of some of those happy and shrewd guesses, in which, as Daniel Bernoulli says, he excelled all men, he saw the undoubted consequences of some palpable phenomenon which would answer all his present purposes, and therefore entered no farther into the investigation.

The original theory of Guglielmini, or the principle adopted by him, that each particle of the vertical sec-

tion of a running stream has a tendency to move as if it were issuing from an orifice at that depth under the surface, is false; and that it really does so in the face of a dam when the flood-gate is taken away, is no less so; and if it did, the subsequent motions would hardly have any resemblance to those which he assigns them. Were this the case, the exterior form of the cascade would be something like what is sketched in fig. 3. with an abrupt angle at B, and a concave surface BEG. This will be evident to every one who combines the greater velocity of the lower filaments with the slower motion of those which must slide down above them. But this greater advance of the lower filaments cannot take place without an expenditure of the water under the surface AB. The surface therefore sinks, and B instantly ceases to retain its place in the horizontal plane. The water does not successively flow forward from A to B, and then tumble over the precipice; but immediately upon opening the flood-gate, the water wastes from the space immediately behind it, and the whole puts on the form represented in fig. 4. consisting of the curve A a P c EG, convex from A to c, and concave from thence forward. The superficial water begins to accelerate all the way from A; and the particles may be supposed (for the present) to have acquired the velocity corresponding to their depth under the horizontal surface. This must be understood as nothing more than a vague sketch of the motions. It requires a very critical and intricate investigation to determine either the form of the upper curve or the motions of the different filaments. The place A, where the curvature begins, is of equally difficult determination, and is various according to the differences of depth and of inclination of the succeeding canal.

We have given this sort of history of the progress which had been made in this part of hydraulics, that our readers might form some opinion of the many dissertations which have been written on the motion of rivers, and of the state of the arts depending on it. Much of the business of the civil engineer is intimately connected with it: and we may therefore believe, that since there was so little principle in the theories, there could be but very little certainty in the practical operations. The fact has been, that no engineer could pretend to say, with any precision, what would be the effect of his operations. One whose business had given him many opportunities, and who kept accurate and judicious registers of his own works, could pronounce, with some probability, how much water would be brought off by a drain of certain dimensions and a given slope, when the circumstances of the case happened to tally with some former work in which he had succeeded or failed; but out of the pale of his own experience he could only make a sagacious guess. A remarkable instance of this occurred not long ago. A small aqueduct was lately carried into Paris. It had been conducted on a plan presented to the academy, who had corrected it, and gave a report of what its performance would be. When executed in the most accurate manner, it was deficient in the proportion of five to nine. When the celebrated Desaguliers was employed by the city of Edinburgh to superintend the bringing in the water for the supply of the city, he gave a report on the plan which was to be followed. It was executed to his complete satisfaction; and the quantity of water

Plate
CCCCXXXII.

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Uncertainty of the theories when applied to practice explained

²⁶ Theory. water delivered was about one-sixth of the quantity which he promised, and about one-eleventh of the quantity which the no less celebrated M'Laurin calculated from the same plan.

²⁸ Necessity of multiplying experiments. Such being the state of our theoretical knowledge (if it can be called by this name), naturalists began to be persuaded that it was but losing time to make any use of a theory so incongruous with observation, and that the only safe method of proceeding was to multiply experiments in every variety of circumstances, and to make a series of experiments in every important case, which should comprehend all the practicable modifications of that case. Perhaps circumstances of resemblance might occur, which would enable us to connect many of them together, and at last discover the principles which occasioned this connection; by which means a theory founded on science might be obtained. And if this point should not be gained, we might perhaps find a few general facts, which are modified in all these particular cases, in such a manner that we can still trace the general facts, and see the part of the particular case which depends on it. This would be the acquisition of what may be called an empirical theory, by which every phenomenon would be explained, in so far as the explanation of a phenomenon is nothing more than the pointing out the general fact or law under which it is comprehended; and this theory would answer every practical purpose, because we should confidently foresee what consequences would result from such and such premises; or if we should fail even in this, we should still have a series of experiments so comprehensive, that we could tell what place in the series would correspond to any particular case which might be proposed.

²⁹ Labours of Michelotti and Bossut in this way. There are two gentlemen, whose labours in this respect deserve very particular notice, professor Michelotti at Turin, and Abbé Bossut at Paris. The first made a prodigious number of experiments both on the motion of water through pipes and in open canals. They were performed at the expence of the sovereign, and no expence was spared. A tower was built of the finest masonry, to serve as a vessel from which the water was to issue through holes of various sizes, under pressures from 5 to 22 feet. The water was received into basons constructed of masonry and nicely lined with stucco, from whence it was conveyed in canals of brickwork lined with stucco, and of various forms and declivities. The experiments on the expence of water through pipes are of all that have yet been made the most numerous and exact, and may be appealed to on every occasion. Those made in open canals are still more numerous, and are no doubt equally accurate; but they have not been so contrived as to be so generally useful, being in general very unlike the important cases which will occur in practice, and they seem to have been contrived chiefly with the view of establishing or overturning certain points of hydraulic doctrine which were probably prevalent at the time among the practical hydraulists.

The experiments of Bossut are also of both kinds; and though on a much smaller scale than those of Michelotti, seem to deserve equal confidence. As far as they follow the same track, they perfectly coincide in their results, which should procure confidence in the other; and they are made in situations much more analogous to the usual practical cases. This makes

them doubly valuable. They are to be found in his two volumes intitled *Hydrodynamique*. He has opened this path of procedure in a manner so new and so judicious, that he has in some measure the merit of such as shall follow him in the same path.

This has been most candidly and liberally allowed him by the chevalier de Buat, who has taken up this matter where the Abbé Bossut left it, and has prosecuted his experiments with great assiduity; and we must now add with singular success. By a very judicious consideration of the subject, he hit on a particular view of it, which saved him the trouble of a minute consideration of the small internal motions, and enabled him to proceed from a very general and evident proposition, which may be received as the key to a complete system of practical hydraulics. We shall follow this ingenious author in what we have farther to say on the subject; and we doubt not but that our readers will think we do a service to the public by making these discussions of the chevalier de Buat more generally known in this country. It must not however be expected that we shall give more than a synoptical view of them, connected by such familiar reasoning as shall be either comprehended or confided in by persons not deeply versed in mathematical science.

SECT. I. Theory of Rivers.

It is certain that the motion of open streams must, in some respects, resemble that of bodies sliding down inclined planes perfectly polished; and that they would accelerate continually, were they not obstructed: but they are obstructed, and frequently move uniformly. This can only arise from an equilibrium between the forces which promote their descent and those which oppose it. Mr Buat, therefore, assumes the leading proposition, that

When water flows uniformly on any channel or bed, the accelerating force which obliges it to move is equal to the sum of all the resistances which it meets with, whether arising from its own viscosity, or from the friction of its bed.

This law is as old as the formation of rivers, and should be the key of hydraulic science. Its evidence is clear; and it is, at any rate, the basis of all uniform motion. And since it is so, there must be some considerable analogy between the motion in pipes and in open channels. Both owe their origin to an inequality of pressure; both would accelerate continually, if nothing hindered; and both are reduced to uniformity by the viscosity of the fluid and the friction of the channel.

It will therefore be convenient to examine the phenomena of water moving in pipes by the action of its weight only along the sloping channel. But previous to this, we must take some notice of the obstruction to the entry of water into a channel of any kind, arising from the deflection of the many different filaments which press into the channel from the reservoir from every side. Then we shall be able to separate this diminution of motion from the sum total that is observed, and ascertain what part remains as produced by the subsequent obstructions.

We then shall consider the principle of uniform motion, the equilibrium between the power and the resistance. The power is the relative height of the column of fluid which tends to move along the inclined plane of its bed; the resistance is the friction of

ory. of the bed, the viscosity of the fluid, and its adhesion to the sides. Here are necessarily combined a number of circumstances which must be gradually detached that we may see the effect of each, viz. the extent of the bed, its perimeter, and its slope. By examining the effects produced by variations of each of these separately, we discover what share each has in the general effect; and having thus analysed the complicated phenomenon, we shall be able to combine those its elements, and frame a formula which shall comprehend every circumstance, from the greatest velocity to the extinction of all motion, and from the extent of a river to the narrow dimensions of a quill. We shall compare this formula with a series of experiments in all this variety of circumstances, partly made by Mr Buat, and partly collected from other authors; and we shall leave the reader to judge of the agreement.

Confident that this agreement will be found most satisfactory, we shall then proceed to consider very cursorily the chief varieties which nature or art may introduce into these beds, the different velocities of the same stream, the intensity of the resistance produced by the inertia of the materials of the channel, and the force of the current by which it continually acts on this channel, tending to change either its dimensions or its form. We shall endeavour to trace the origin of these great rivers which spread like the branches of a vigorous tree, and occupy the surface even of a vast continent. We shall follow them in their course, unfold all their windings, study their train, and regimen, and point out the law of its stability; and we shall investigate the causes of their deviations and wanderings.

The study of these natural laws pleases the mind: but it answers a still greater purpose; it enables us to assist nature, and to hasten her operations, which our wants and our impatience often find too slow. It enables us to command the elements, and to force them to administer to our wants and our pleasures.

We shall therefore, in the next place, apply the knowledge which we may acquire to the solution of the most important hydraulic questions which occur in the practice of the civil engineer.

We shall consider the effects produced by a permanent addition to any river or stream by the union of another, and the opposite effect produced by any draught or offset, showing the elevation or depression produced up the stream, and the change made in the depth and velocity below the addition or offset.

We shall pay a similar attention to the temporary swells produced by freshes.

We shall ascertain the effects of straightening the course of a stream, which, by increasing its slope, must increase its velocity, and therefore sink the waters above the place where the curvature was removed, and diminish the tendency to overflow, while the same immediate consequence must expose the places farther down to the risk of floods from which they would otherwise have been free.

The effects of dams or weirs, and of bars, must then be considered; the gorge or swell which they produce up the stream must be determined for every distance from the weir or bar. This will furnish us with rules for rendering navigable or floatable such waters as have too little depth or too great slope. And it will appear

that immense advantages may be thus derived, with a moderate expence, even from trifling brooks, if we will relinquish all prejudices, and not imagine that such conveyance is impossible, because it cannot be carried on by such boats and small craft as we have been accustomed to look at.

The effects of canals of derivation, the rules or maxims of draining, and the general maxims of embankment, come in the next place; and our discussions will conclude with remarks on the most proper forms for the entry to canals, locks, docks, harbours, and mouths of rivers, the best shape for the stairings of bridges and of boats for inland navigations, and such like subordinate but interesting particulars, which will be suggested by the general thread of discussion.

It is considered, as physically demonstrated (see *HYDROSTATICS* and *HYDRAULICS*), that water issuing from a small orifice in the bottom or side of a very large vessel, almost instantly acquires and maintains the velocity which a heavy body would acquire by falling to the orifice from the horizontal surface of the stagnant water. This we shall call its *NATURAL VELOCITY*. Therefore if we multiply the area of the orifice by this velocity, the product will be the bulk or quantity of the water which is discharged. This we may call the *NATURAL EXPENCE* of water, or the *NATURAL DISCHARGE*.

Let O represent the area or section of the orifice expressed in some known measure, and b its depth under the surface. Let g express the velocity acquired by a heavy body during a second by falling. Let V be the medium velocity of the water's motion, Q the quantity of water discharged during a second, and N the natural expence.

We know that V is equal to $\sqrt{2g} \times \sqrt{b}$. Therefore $N = O. \sqrt{2g}. \sqrt{b}$.

If these dimensions be all taken in English feet, we have $\sqrt{2g}$ very nearly equal to 8; and therefore $V = 8\sqrt{b}$, and $N = O. 8\sqrt{b}$.

But in our present business it is much more convenient to measure every thing by inches. Therefore since a body acquires the velocity of 32 feet 2 inches in a second, we have $2g = 64$ feet 4 inches or 772 inches, and $\sqrt{2g} = 27.78$ inches nearly $27\frac{1}{2}$ inches.

Therefore $V = \sqrt{772} \sqrt{b} = 27.78 \sqrt{b}$, and $N = O. \sqrt{772} \sqrt{b} = O. 27.78 \sqrt{b}$.

But it is also well known, that if we were to calculate the expence or discharge for every orifice by this simple rule, we should in every instance find it much greater than nature really gives us.

When water issues through a hole in a thin plate, the lateral columns, pressing into the hole from all sides, cause the issuing filaments to converge to the axis of the jet, and contract its dimensions at a little distance from the hole. And it is in this place of greatest contraction that the water acquires that velocity which we observe in our experiments, and which we assume as equal to that acquired by falling from the surface. Therefore, that our computed discharge may best agree with observation, it must be calculated on the supposition that the orifice is diminished to the size of this smallest section. But the contraction is subject to variations, and the dimensions of this smallest section

Theory.

33
Natural velocity, expence and discharge through small orifices.

Theory. are at all times difficult to ascertain with precision. It is therefore much more convenient to compute from the real dimensions of the orifice, and to correct this computed discharge, by means of an actual comparison of the computed and effective discharges in a series of experiments made in situations resembling those cases which most frequently occur in practice. This correction or its cause, in the mechanism of these internal motions, is generally called **CONTRACTION** by the writers on hydraulics; and it is not confined to a hole in a thin plate: it happens in some degree in all cases where fluids are made to pass through narrow places. It happens in the entry into all pipes, canals, and sluices; nay even in the passage of water over the edge of a board, such as is usually set up on the head of a dam or weir, and even when this is immersed in water on both sides, as in a bar or keep, frequently employed for raising the waters of the level streams in Flanders, in order to render them navigable.

See Refl. We mentioned an observation of Mr Buat to this effect, when he saw a gooseberry rise up from the bottom of the canal along the face of the bar, and then rapidly fly over its top. We have attempted to represent this motion of the filaments in these different situations.

34
Contraction.
Fig. 5. A shows the motion through a thin plate.
B shows the motion when a tube of about two diameters long is added, and when the water flows with a full mouth. This does not always happen in so short a pipe (and never in one that is shorter), but the water frequently detaches itself from the sides of the pipe, and flows with a contracted jet.
C shows the motion when the pipe projects into the inside of the vessel. In this case it is difficult to make it flow full.
D represents a mouth-piece fitted to the hole, and formed agreeably to that shape which a jet would assume of itself. In this case all contraction is avoided, because the mouth of this pipe may be considered as the real orifice, and nothing now diminishes the discharge but a trifling friction of the sides.
E shows the motion of water over a dam or weir, where the fall is free or unobstructed; the surface of the lower stream being lower than the edge or sole of the waste-board.
F is a similar representation of the motion of water over what we would call a bar or keep.

36
And the effects of contraction determined.

It was one great aim of the experiments of Michelotti and Bossut to determine the effects of contraction in these cases. Michelotti, after carefully observing the form and dimensions of the natural jet, made various mouth-pieces resembling it, till he obtained one which produced the smallest diminution of the computed discharge, or till the discharge computed for the area of its smaller end approached the nearest to the effective discharge. And he at last obtained one which gave a discharge of 983, when the natural discharge would have been 1000. This piece was formed by the revolution of a trochoid round the axis of the jet, and the dimensions were as follow:

Diameter of the outer orifice = 36
————— inner orifice = 46
Length of the axis = 96

The results of the experiments of the Abbé Bossut and of Michelotti scarcely differ, and they are expressed in the following table:

N or the natural expence	10000 = 0.27,78 \sqrt{h}	Theor
Q for the thin plate fig. A } almost at the surface	6526	0.18,13 \sqrt{h}
Q for ditto at the depth of 8 feet	6195	0.17,21 \sqrt{h}
Q for ditto at the depth of 16 feet	6173	0.17,15 \sqrt{h}
Q for a tube 2 diameters long, } fig. B.	8125	0.22,57 \sqrt{h}
Q for ditto projecting inwards } and flowing full	6814	0.18,93 \sqrt{h}
Q for ditto with a contracted } jet, fig. C.	5137	0.14,27 \sqrt{h}
Q for the mouth-piece, fig. D.	9831	0.27,31 \sqrt{h}
Q for a weir, fig. E.	9536	0.26,49 \sqrt{h}
Q for a bar, fig. F.	9730	0.27,03 \sqrt{h}

The numbers in the last column of this little table are the cubical inches of water discharged in a second when the height h is one inch.

It must be observed that the discharges assigned here for the weir and bar relate only to the contractions occasioned by the passage over the edge of the board. The weir may also suffer a diminution by the contractions at its two ends, if it should be narrower than the stream, which is generally the case, because the two ends are commonly of square masonry or wood-work. The contraction there is nearly the same with that at the edge of a thin plate. But this could not be introduced into this table, because its effect on the expence is the same in quantity whatever is the length of the waste-board of the weir.

In like manner, the diminution of discharge through a sluice could not be expressed here. When a sluice is drawn up, but its lower edge still remains under water, the discharge is contracted both above and at the sides, and the diminution of discharge by each is in proportion to its extent. It is not easy to reduce either of these contractions to computation, but they may be very easily observed. We frequently can observe the water, at coming out of a sluice into a mill-course, quit the edge of the aperture, and show a part of the bottom quite dry. This is always the case when the velocity of efflux is considerable. When it is very moderate, this place is occupied by an eddy water almost stagnant. When the head of water is 8 or 10 inches, and runs off freely, the space left between it and the sides is about $1\frac{1}{2}$ inches. If the sides of the entry have a slope, this void space can never appear; but there is always this tendency to convergence, which diminishes the quantity of the discharge.

It will frequently abridge computation very much to consider the water discharged in these different situations as moving with a common velocity, which we conceive as produced not by a fall from the surface of the fluid (which is exact only when the expence is equal to the natural expence), but by a fall h accommodated to the discharge: or it is convenient to know the height which would produce that very velocity which the water issues with in these situations.

And also, when the water is observed to be actually moving with a velocity V , and we know whether it is coming through a thin plate, through a tube, over a dam, &c. it is necessary to know the pressure or HEAD OF WATER h which has actually produced this velocity. It is convenient therefore to have the following numbers in readiness.

h for

R I V E R.

h for the natural expence	$= \frac{V^3}{772}$
h for a thin plate	$= \frac{V^3}{296}$
h for a tube 2 diam. long	$= \frac{V^3}{505}$
h for a dam or weir	$= \frac{V^3}{726}$
h for a bar	$= \frac{V^3}{746}$

It was necessary to premise these facts in hydraulics, that we may be able in every case to distinguish between the force expended in the entry of the water into the conduit or canal, and the force employed in overcoming the resistances along the canal, and in preserving or accelerating its motion in it.

The motion of running water is produced by two causes; 1. The action of gravity; and, 2. The mobility of the particles, which makes them assume a level in confined vessels, or determines them to move to that side where there is a defect of pressure. When the surface is level, every particle is at rest, being equally pressed in all directions; but if the surface is not level, not only does a particle on the very surface tend by its own weight towards the lower side, as a body would slide along an inclined plane, but there is a force, external to itself, arising from a superiority of pressure on the upper end of the surface, which pushes this superficial particle towards the lower end; and this is not peculiar to the superficial particles, but affects every particle within the mass of water. In the vessel ACDE (fig. 6.), containing water with an inclined surface AE, if we suppose all frozen but the extreme columns AKHB, FGLE, and a connecting portion HKCDLG, it is evident, from hydrostatical laws, that the water on this connecting part will be pushed in the direction CD; and if the frozen mass BHGF were moveable, it would also be pushed along. Giving it fluidity will make no change in this respect; and it is indifferent what is the situation and shape of the connecting column or columns. The propelling force (MNF being horizontal) is the weight of the column AMNB. The same thing will obtain wherever we select the vertical columns. There will always be a force tending to push every particle of water in the direction of the declivity. The consequence will be, that the water will sink at one end and rise at the other, and its surface will rest in the horizontal position aOe , cutting the former in its middle O. This cannot be unless there be not only a motion of perpendicular descent and ascent of the vertical columns, but also a real motion of translation from K towards L. It perhaps exceeds our mathematical skill to tell what will be the motion of each particle. Newton did not attempt it in his investigation of the motion of waves, nor is it at all necessary here. We may, however, acquire a very distinct notion of its general effect. Let OPQ be a vertical plane passing through the middle point O. It is evident that every particle in PQ, such as P, is pressed in the direction QD, with a force equal to the weight of a single row of particles, whose length is the difference between the columns BH and FG. The force acting on the particle Q is, in like manner, the weight of a row of particles = AC - ED. Now if OQ, OA, OE, be divided in the same ratio, so that

all the figures ACDE, BHGF, &c. may be similar, we see that the force arising solely from the declivity, and acting on each particle on the plane OQ, is proportional to its depth under the surface, and that the row of particles ACQDE, BHPGF, &c. which is to be moved by it, is in the same proportion. Hence it unquestionably follows, that the accelerating force on each particle of the row is the same in all. Therefore the whole plane OQ tends to advance forward together with the same velocity; and in the instant immediately succeeding, all these particles would be found again in a vertical plane indefinitely near to OQ; and if we sum up the forces, we shall find them the same as if OQ were the opening of a sluice, having the water on the side of D standing level with O, and the water on the other side standing at the height AC. This result is extremely different from that of the hasty theory of Guglielmini. He considers each particle in OQ as urged by an accelerating force proportional to its depth, it is true; but he makes it equal to the weight of the row OP, and never recollects that the greatest part of it is balanced by an opposite pressure, nor perceives that the force which is not balanced must be distributed among a row of particles which varies in the same proportion with itself. When these two circumstances are neglected, the result must be incompatible with observation. When the balanced forces are taken into the account of pressure, it is evident that the surface may be supposed horizontal, and that motion should obtain in this case as well as in the case of a sloping surface: and indeed this is Guglielmini's professed theory, and what he highly values himself on. He announces this discovery of a new principle, which he calls the energy of deep waters, as an important addition to hydraulics. It is owing to this, says he, that the great rivers are not stagnant at their mouths, where they have no perceptible declivity of surface, but, on the contrary, have greater energy and velocity than farther up, where they are shallower. This principle is the basis of his improved theory of rivers, and is insisted on at great length by all the subsequent writers. Buffon, in his theory of the earth, makes much use of it. We cannot but wonder that it has been allowed a place in the theory of rivers given in the great *Encyclopédie* of Paris, and in an article having the signature (O) of D'Alembert. We have been very anxious to show the falsity of this principle, because we consider it as a mere subterfuge of Guglielmini, by which he was able to patch up the mathematical theory which he had so hastily taken from Newton or Galileo; and we think that we have secured our readers from being misled by it, when we show that this energy must be equally operative when the surface is on a dead level. The absurdity of this is evident. We shall see by and by, that deep waters, when in actual motion, have an energy not to be found in shallow running waters, by which they are enabled to continue that motion: but this is not a moving principle; and it will be fully explained, as an immediate result of principles, not vaguely conceived and indistinctly expressed, like this of Guglielmini, but easily understood, and appreciable with the greatest precision. It is an energy common to all great bodies. Although they lose as much momentum in surmounting any obstacle as small ones, they lose but a small portion of their velocity. At present, employed only in consider-

Theory.

ing the progressive motion of an open stream, whose surface is not level, it is quite enough that we see that such a motion must obtain, and that we see that there are propelling forces; and that those forces arise *solely* from the want of a level surface, or from the slope of the surface; and that, with respect to any one particle, the force acting on it is proportional to the difference of level between each of the two columns (one on each side of the particle) which produce it. Were the surface level, there would be no motion; if it is not level, there will be motion; and this motion will be proportional to the want of level or the declivity of the surface; it is of no consequence whether the bottom be level or not, or what is its shape.

Hence we draw a fundamental principle, that *the motion of rivers depends entirely on the slope of the surface.*

The SLOPE or declivity of any inclined plane is not properly expressed by the difference of height alone of its extremities; we must also consider its length: and the measure of the slope must be such that it may be the same while the declivity is the same. It must therefore be the same over the whole of any one inclined plane. We shall answer these conditions exactly, if we take for the measure of a slope the fraction which expresses the elevation of one extremity above the other divided by the length of the plane. Thus $\frac{AM}{AF}$ will

express the declivity of the plane AF.

39.
When it is
uniform
the resist-
ance is e-
qual to the
accelera-
ting force.

If the water met with no resistance from the bed in which it runs, if it had no adhesion to its sides and bottom, and if its fluidity were perfect, its gravity would accelerate its course continually, and the earth and its inhabitants would be deprived of all the advantages which they derive from its numberless streams. They would run off so quickly, that our fields, dried up as soon as watered, would be barren and useless. No soil could resist the impetuosity of the torrents; and their accelerating force would render them a destroying scourge, were it not that, by kind Providence, the resistance of the bed, and the viscosity of the fluid, become a check which reins them in and sets bounds to their rapidity. In this manner the friction on the sides, which, by the viscosity of the water, is communicated to the whole mass, and the very adhesion of the particles to each other, and to the sides of the channel, are the causes which make the resistances bear a relation to the velocity; so that the resistances augmenting with the velocities, come at last to balance the accelerating force. Then the velocity now acquired is preserved, and the motion becomes uniform, without being able to acquire new increase, unless some change succeeds either in the slope or in the capacity of the channel. Hence arises the second maxim in the motion of rivers, that *when a stream moves uniformly, the resistance is equal to the accelerating force.*

As in the efflux of water through orifices, we pass over the very beginnings of the accelerated motion, which is a matter of speculative curiosity, and consider the motion in a state of permanency, depending on the head of water, the area of the orifice, the velocity, and the expence; so, in the theory of the uniform motion of rivers, we consider the slope, the transverse section or area of the stream, the uniform velocity, and the ex-

pence. It will be convenient to affix precise meanings to the terms which we shall employ.

The SECTION of a stream is the area of a plane perpendicular to the direction of the general motion.

The resistances arise ultimately from the action of the water on the internal surface of the channel, and must be proportional (*ceteris paribus*) to the extent of the action. Therefore if we unfold the whole edge of this section, which is rubbed as it were by the passing water, we shall have a measure of the extent of this action. In a pipe, circular or prismatical, the whole circumference is acted on; but in a river or canal ACDQ (fig. 6.) the horizontal line $a O e$, which makes the upper boundary of the section $a C D e$, is free from all action. The action is confined to the three lines $a C$, CD , $D e$. We shall call this line $a C D e$ the BORDER of the section.

The MEAN VELOCITY is that with which the whole section, moving equally, would generate a solid equal to the expence of the stream. This velocity is to be found perhaps but in one filament of the stream, and we do not know in which filament it is to be found.

Since we are attempting to establish an empirical theory of the motion of rivers, founded entirely on experiment and palpable deductions from them; and since it is extremely difficult to make experiments on open streams which shall have a precision sufficient for such an important purpose—it would be a most desirable thing to demonstrate an exact analogy between the mutual balancing of the acceleration and resistance in pipes and in rivers; for in those we can not only make experiments with all the desired accuracy, and admitting precise measures, but we can make them in a number of cases that are almost impracticable in rivers. We can increase the slope of a pipe from nothing to the vertical position, and we can employ every desired degree of pressure, so as to ascertain its effect on the velocity in degrees which open streams will not admit. The Chevalier de Buat has most happily succeeded in this demonstration; and it is here that his good fortune and his penetration have done so much service to practical science.

Let AB (fig. 7.) be a horizontal tube, through which the water is impelled by the pressure or HEAD DA . This head is the moving power; and it may be conceived as consisting of two parts, performing two distinct offices. One of them is employed in impressing on the water that velocity with which it *actually moves* in the tube. Were there no obstructions to this motion, no greater head would be wanted; but there are obstructions arising from friction, adhesion, and viscosity. This requires force. Let this be the office of the rest of the head of water in the reservoir. There is but one allotment, appropriation, or repartition, of the whole head which will answer. Suppose E to be the point of partition, so that DE is the head necessary for impressing the actual velocity on the water (a head or pressure which has a relation to the form or circumstance of the entry, and the contraction which takes place there). The rest EA is wholly employed in overcoming the simultaneous resistances which take place along the whole tube AB, and is in equilibrium with this resistance. Therefore if we apply at E a tube EC of the same length and diameter with AB, and

and having the same degree of polish or roughness; and if this tube be inclined in such a manner that the axis of its extremity may coincide with the axis of AB in the point C—we affirm that the velocity will be the same in both pipes, and that they will have the same expence; for the moving force in the sloping pipe EC is composed of the whole weight of the column DE and the relative weight of the column EC; but this relative weight, by which alone it descends along the inclined pipe EC, is precisely equal to the weight of a vertical column EA of the same diameter. Every thing therefore is equal in the two pipes, viz. the lengths, the diameters, the moving forces, and the resistances; therefore the velocities and discharges will also be equal.

This is not only the case on the whole, but also in every part of it. The relative weight of any part of it EK is precisely in equilibrio with the resistances along that part of the pipe; for it has the same proportion to the whole relative weight that the resistance has to the whole resistance. Therefore (*and this is the most important circumstance, and the basis of the whole theory*) the pipe EC may be cut shorter, or may be lengthened to infinity, without making any change in the velocity or expence, so long as the propelling head DE remains the same.

Leaving the whole head DA as it is, if we lengthen the horizontal pipe AB to G, it is evident that we increase the resistance without any addition of force to overcome it. The velocity must therefore be diminished; and it will now be a velocity which is produced by a smaller head than DE: therefore if we were to put in a pipe of equal length at E, terminating in the horizontal line AG, the water will not run equally in both pipes. In order that it may, we must discover the diminished velocity with which the water now actually runs along AG, and we must make a head DI capable of impressing this velocity at the entry of the pipe, and then insert at I a pipe IH of the same length with AG. The expence and velocity of both pipes will now be the same (A).

What has now been said of a horizontal pipe AB would have been equally true of any inclined pipe AB, A'B (fig. 8.) Drawing the horizontal line CB, we see that DC is the whole head or propelling pressure for either pipe AB or A'B; and if DE is the head necessary for the actual velocity, EC is the head necessary for balancing the resistances; and the pipe EF of the same length with AB, and terminating in the same horizontal line, will have the same velocity; and its inclination being thus determined, it will have the same

velocity and expence whatever be its length.

Thus we see that the motion in any pipe, horizontal or sloping, may be referred to or substituted for the motion in another inclined pipe, whose head of water, above the place of entry, is that productive of the actual velocity of the water in the pipe. Now, in this case, the accelerating force is equal to the resistance: we may therefore consider this last pipe as a river, of which the bed and the slope are uniform or constant, and the current in a state of permanency; and we now may clearly draw this important conclusion, that pipes and open streams, when in a state of permanency, perfectly resemble each other in the circumstances which are the immediate causes of this permanency. The equilibrium between the accelerating force obtains not only in general, but takes place through the whole length of the pipe or stream, and is predicable of every individual transverse section of either. To make this more palpably evident if possible, let us consider a sloping cylindrical pipe, the current of which is in a state of permanency. We can conceive it as consisting of two half cylinders, an upper and a lower. These are running together at an equal pace; and the filaments of each immediately contiguous to the separating plane and to each other, are not rubbing on each other, nor affecting each others motions in the smallest degree. It is true that the upper half is pressing on the lower, but in a direction perpendicular to the motion, and therefore not affecting the velocity; and we shall see presently, that although the lower side of the pipe bears somewhat more pressure than the other, the resistances are not changed. (Indeed this odds of pressure is accompanied with a difference of motion, which need not be considered at present; and we may suppose the pipe so small or so far below the surface, that this shall be insensible). Now let us suppose, that in an instant the upper half cylinder is annihilated: We then have an open stream; and every circumstance of accelerating force and of resistance remains precisely as it was. The motion must therefore continue as it did; and in this state the only accelerating force is the slope of the surface. The demonstration therefore is complete.

From these observations and reasonings we draw a general and important conclusion, "That the same pipe will be susceptible of different velocities, which it will preserve uniform to any distance, according as it has different inclinations; and each inclination of a pipe of given diameter has a certain velocity peculiar to itself, which will be maintained uniform to any distance

L 1 2

what-

Theory.

43

Analogy between these pipes and rivers demonstrated by De Buat.

44

Consequence.

(A) We recommend it to the reader to make this distribution or allotment of the different portions of the pressure very familiar to his mind. It is of the most extensive influence in every question of hydraulics, and will on every occasion give him distinct conceptions of the internal procedure. Obvious as the thought seems to be, it has escaped the attention of all the writers on the subject. Lecchi, in his *Hydraulics* published in 1766, ascribes something like it to Daniel Bernoulli; but Bernoulli, in the passage quoted, only speaks of the partition of pressure in the instant of opening an orifice. Part of it, says he, is employed in accelerating the quiescent water, and producing the velocity of efflux, and the remainder produces the pressure (now diminished) on the sides of the vessel. Bernoulli, Bossut, and all the good writers, make this distribution in express terms in their explanation of the motion of water through successive orifices; and it is surprising that no one before the Chevalier de Buat saw that the resistance arising from friction required a similar partition of the pressure; but though we should call this good fortune, we must ascribe to his great sagacity and justness of conception the beautiful use that he has made of it: "*suum cuique.*"

Theory.

whatever; and this velocity increases continually, according to some law, to be discovered by theory or experiment, as the position of the pipe changes, from being horizontal till it becomes vertical; in which position it has the greatest uniform velocity possible relative to its inclination, or depending on inclination alone.

Let this velocity be called the **TRAIN**, or the **RATE** of each pipe.

45
Measure of the resistance to the motion with a given velocity.

It is evident that this principle is of the utmost consequence in the theory of hydraulics; for by experiment we can find the train of any pipe. It is in train when an increase of length makes no change in the velocity. If lengthening the pipe increases the velocity, the slope of the pipe is too great, and *vice versa*. And having discovered the train of a pipe, and observed its velocity, and computed the head productive of this velocity with the contraction at the entry, the remainder of the head, that is, the slope (for this is equivalent to EA), is the measure of the resistance. Thus we obtain the measure of the resistance to the motion with a given velocity in a pipe of given diameter. If we change only the velocity, we get the measure of the new resistance relative to the velocity; and thus discover the law of relation between the resistance and velocity. Then, changing only the diameter of the pipe, we get the measure of the resistance relative to the diameter. This is the aim of a prodigious number of experiments made and collected by Buat, and which we shall not repeat, but only give the results of the different parts of his investigation.

46
Results of De Buat's investigation on this subject.

We may express the slope of a pipe by the symbol $\frac{1}{s}$, $\frac{1}{s}$ being an inch for instance, and s being the slant length of a pipe which is one inch more elevated at one end than at the other. Thus a river which has a declivity of an inch and a half in 120 fathoms or 8640 inches, has its slope = $\frac{1\frac{1}{2}}{8640}$, or $\frac{1}{5760}$. But in order to obtain the hydraulic slope of a conduit pipe, the heights of the reservoir and place of discharge being given, we must subtract from the difference of elevation the height or head of water necessary for propelling the water into any pipe with the velocity V , which it is supposed actually to have. This is $\frac{V^2}{505}$. The remainder d is to be considered as the height of the declivity, which is to be distributed equally over the whole length

l of the pipe, and the slope is then $\frac{d}{l} = \frac{1}{s}$.

There is another important view to be taken of the slope, which the reader should make very familiar to his thoughts. It expresses the proportion between the weight of the whole column which is in motion and the weight which is employed in overcoming the resistance; and the resistance to the motion of any column of water is equal to the weight of that column multiplied by the fraction $\frac{1}{s}$, which expresses its slope.

47
Of the resistances which bring the motions to a state of uniformity.

WE come now to consider more particularly the resistances which in this manner bring the motions to a state of uniformity. If we consider the resistances which arise from a cause analogous to friction, we see that they must depend entirely on the inertia of the

water. What we call the resistance is the diminution of a motion which *would* have obtained but for these resistances; and the best way we have of measuring them is by the force which we must employ in order to keep up or restore this motion. We estimate this motion by a progressive velocity, which we measure by the expence of water in a given time. We judge the velocity to diminish, when the quantity discharged diminishes; yet it may be otherwise, and probably is otherwise. The absolute velocity of many, if not all, of the particles, may even be increased; but many of the motions, being transverse to the general direction, the quantity of motion in this direction may be less, while the sum of the absolute motions of all the particles may be greater. When we increase the general velocity, it is not unreasonable to suppose that the impulses on all the inequalities are increased in this proportion; and the number of particles thus impelling and deflected at the same time will increase in the same proportion. The whole quantity therefore of these useless and lost motions will increase in the duplicate ratio of the velocities, and the force necessary for keeping up the motion will do so also; that is, the resistances should increase as the squares of the velocities.

Or if we consider the resistances as arising merely from the curvature of the imperceptible internal motions occasioned by the inequalities of the sides of the pipe, and as measured by the forces necessary for producing these curvilinear motions; then, because the curves will be the same whatever are the velocities, the deflecting forces will be as the squares of the velocities; but these deflecting forces are pressures, propagated from the parts urged or pressed by the external force, and are proportional to these external pressures by the principles of hydrostatics. Therefore the pressures or forces necessary for keeping up the velocities are as the squares of these velocities; and they are our only measures of the resistances which must be considered as following the same ratio. Whatever view therefore we take of the nature of these resistances, we are led to consider them as proportional to the squares of the velocities.

We may therefore express the resistances by the symbol $\frac{V^2}{m}$, m being some number to be discovered by experiment. Thus, in a particular pipe, the diminution of the motion or the resistance may be the 1000th part of the square of the velocity, and $R = \frac{V^2}{1000}$.

Now if g be the accelerating power of gravity on any particle, $\frac{g}{s}$ will be its accelerating power, by which

it would urge it down the pipe whose slope is $\frac{1}{s}$. Therefore, by the principle of uniform motion, the equality of the accelerating force, and the resistance, we shall have $\frac{V^2}{m} = \frac{g}{s}$, and $V \sqrt{s} = \sqrt{mg}$; that is, the product of the velocity, and the reciprocal of the square root of the slope, or the quotient of the velocity divided by the slope, is a constant quantity \sqrt{mg} for any given pipe; and the primary formula for all the uniform velocities of one pipe is $V = \frac{\sqrt{mg}}{\sqrt{s}}$.

theory. Mr Buat therefore examined this by experiment, but found, that even with respect to a pipe or channel which was uniform throughout, this was not true. We could give at once the final formula which he found to express the velocity in every case whatever; but this would be too empirical. The chief steps of his very sagacious investigation are instructive. We shall therefore mention them briefly, at least as far as they tend to give us any collateral information; and let it always be noted, that the instruction which they convey is not abstract speculation, but experimental truths, which must ever remain as an addition to our stock of knowledge, although Mr Buat's deductions from them should prove false.

He found, in the first place, that in the same channel the product of V and \sqrt{s} increased as \sqrt{s} increased; that is, the velocities increased faster than the square roots of the slope, or the resistances did not increase as fast as the squares of the velocities. We beg leave to refer our readers to what we said on the resistance of pipes to the motion of fluids through them, in the article PNEUMATICS, when speaking of bellows. They will there see very valid reasons (we apprehend) for thinking that the resistances must increase more slowly than the squares of the velocities.

It being found, then, that $V\sqrt{s}$ is not equal to a constant quantity \sqrt{mg} , it becomes necessary to investigate some quantity depending on \sqrt{s} , or, as it is called, some function of \sqrt{s} , which shall render \sqrt{mg} a constant quantity. Let X be this function of \sqrt{s} , so that we shall always have VX equal to the constant quantity \sqrt{mg} , or $\frac{\sqrt{mg}}{X}$ equal to the actual velocity V of a pipe or channel which is in train.

Mr Buat, after many trials and reflections, the chief of which will be mentioned by and by, found a value of X which corresponded with a vast variety of slopes and velocities, from motions almost imperceptible, in a bed nearly horizontal, to the greatest velocities which could be produced by gravity alone in a vertical pipe; and when he compared them together, he found a very discernible relation between the resistances and the magnitude of the section: that is, that in two channels which had the same slope, and the same propelling force, the velocity was greatest in the channel which had the greatest section relative to its border. This may reasonably be expected. The resistances arise from the mutual action of the water and this border. The water immediately contiguous to it is retarded, and this retards the next, and so on. It is to be expected, therefore, that if the border, and the velocity, and the slope, be the same, the diminution of this velocity will be so much the less as it is to be shared among a greater number of particles; that is, as the area of the section is greater in proportion to the extent of its border. The diminution of the general or medium velocity must be less in a cylindrical pipe than in a square one of the same area, because the border of its section is less.

It appears evident, that the resistance of each particle is in the direct proportion of the whole resistance, and the inverse proportion of the number of particles which receive equal shares of it. It is therefore directly as the

border, and inversely as the section. Therefore in the Theory.

expression $\frac{V^2}{m}$ which we have given for the resistance, the quantity m cannot be constant, except in the same channel; and in different channels it must vary along with the relation of the section to its border, because the resistances diminish in proportion as this relation increases.

Without attempting to discover this relation by theoretical examination of the particular motions of the various filaments, Mr Buat endeavoured to discover it by a comparison of experiments. But this required some manner of stating this proportion between the augmentation of the section and the augmentation of its border.

His statement is this: He reduces every section to a rectangular parallelogram of the same area, and having its base equal to the border unfolded into a straight line. The product of this base by the height of the rectangle will be equal to the area of the section. Therefore this height will be a representative of this variable ratio of the section to its border (We do not mean that there is any ratio between a surface and a line: but the ratio of section to section is different from that of border to border; and it is the ratio of these ratios which is thus expressed by the height of this rectangle). If S be the section, and B the border, $\frac{S}{B}$ is evidently a line equal to the height of this rectangle. Every section being in this manner reduced to a rectangle, the perpendicular height of it may be called the HYDRAULIC MEAN DEPTH of the section, and may be expressed by the symbol d . (Buat calls it the mean radius). If the channel be a cylindrical pipe, or an open half cylinder, it is evident that d is half the radius. If the section is a rectangle, whose width is w , and height b ,

the mean depth is $\frac{wb}{b+2b}$, &c. In general, if q represent the proportion of the breadth of a rectangular canal to its depth, that is, if q be made $= \frac{w}{b}$, we shall have $d = \frac{w}{q+2}$, or $d = \frac{qb}{q+2}$.

Now, since the resistances must augment as the proportion of the border to the section augments, m in the formulas $\frac{V^2}{m} = \frac{g}{s}$ and $V\sqrt{s} = \sqrt{mg}$, must follow the proportions of d , and the quantity \sqrt{mg} must be proportional to \sqrt{d} for different channels, and $\frac{\sqrt{mg}}{\sqrt{d}}$ should be a constant quantity in every case.

Our author was aware, however, of a very specious objection to the close dependence of the resistance on the extent of the border; and that it might be said that a double border did not occasion a double resistance, unless the pressure on all the parts was the same. For it may be naturally (and it is generally) supposed, that the resistance will be greater when the pressure is greater. The friction or resistance analogous to friction may therefore be greater on an inch of the bottom than on an inch of the sides; but Mr D'Alembert and many others have demonstrated, that the paths of the filaments will be the same whatever be the pressures: This

Theory.
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Obviated
by an ex-
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This might serve to justify our ingenious author; but he was determined to test every thing on experiment. He therefore made an experiment on the oscillation of water in syphons, which we have repeated in the following form, which is affected by the same circumstances, and is susceptible of much greater precision, and of more extensive and important application.

The two vessels ABCD, *abcd* (fig. 9.) were connected by the syphon EFG *gfe*, which turned round in the short tubes E and *e*, without allowing any water to escape; the axes of these tubes being in one straight line. The vessels were about 10 inches deep, and the branches FG, *fg* of the syphon were about five feet long. The vessels were set on two tables of equal height, and (the hole *e* being stopped) the vessel ABCD, and the whole syphon, were filled with water, and water was poured into the vessel *abcd* till it stood at a certain height LM. The syphon was then turned into a horizontal position, and the plug drawn out of *e*, and the time carefully noted which the water employed in rising to the level HK *kb* in both vessels. The whole apparatus was now inclined, so that the water run back into ABCD. The syphon was now put in a vertical position, and the experiment was repeated. — No sensible or regular difference was observed in the time. Yet in this experiment the pressure on the part G *g* of the syphon was more than six times greater than before. As it was thought that the friction on this small part (only six inches) was too small a portion of the whole obstruction, various additional obstructions were put into this part of the syphon, and it was even lengthened to nine feet; but still no remarkable difference was observed. It was even thought that the times were less when the syphon was vertical.

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Thus Mr De Buat's opinion is completely justified; and he may be allowed to assert, that the resistance depends chiefly on the relation between the section and its border; and that $\frac{\sqrt{mg}}{\sqrt{d}}$ should be a constant quantity.

To ascertain this point was the object of the next series of experiments; to see whether this quantity was really constant, and, if not, to discover the law of its variation, and the physical circumstances which accompanied the variations, and may therefore be considered as their causes. A careful comparison of a very great number of experiments, made with the same slope, and with very different channels and velocities, showed that \sqrt{mg} did not follow the proportion of \sqrt{d} , nor of any power of \sqrt{d} . This quantity \sqrt{mg} increased by smaller degrees in proportion as \sqrt{d} was greater. In very great beds \sqrt{mg} was nearly proportional to \sqrt{d} , but in smaller channels, the velocities diminished much more than \sqrt{d} did. Casting about for some way of accommodation, Mr Buat considered, that some approximation at least would be had by taking off from \sqrt{d} some constant small quantity. This is evident: For such a diminution will have but a trifling effect when \sqrt{d} is great, and its effect will increase rapidly when \sqrt{d} is very small. He therefore tried various values for this subtraction, and compared the results with the former experiments; and he found, that if in

every case \sqrt{d} be diminished by one-tenth of an inch, the calculated discharges would agree very exactly with the experiment. Therefore, instead of \sqrt{d} , he makes use of $\sqrt{d} - 0.1$, and finds this quantity always pro-

portional to \sqrt{mg} , or finds that $\frac{\sqrt{mg}}{\sqrt{d} - 0.1}$ is a constant quantity, or very nearly so. It varied from 297 to 287 in all sections from that of a very small pipe to that of a little canal. In the large sections of canals and rivers it diminished still more, but never was less than 256.

This result is very agreeable to the most distinct notions that we can form of the mutual actions of the water and its bed. We see, that when the motion of water is obstructed by a solid body, which deflects the passing filaments, the disturbance does not extend to any considerable distance on the two sides of the body. In like manner, the small disturbances, and imperceptible curvilinear motions, which are occasioned by the infinitesimal inequalities of the channel, must extend to a very small distance indeed from the sides and bottom of the channel. We know, too, that the mutual adhesion or attraction of water for the solid bodies which are moistened by it, extends to a very small distance; which is probably the same, or nearly so, in all cases. Mr Buat observed, that a surface of 23 square inches, applied to the surface of stagnant water, lifted 1601 grains; another of $5\frac{1}{2}$ square inches lifted 365: this was at the rate of 65 grains per inch nearly, making a column of about one-sixth of an inch high. Now this effect is very much analogous to a real contraction of the capacity of the channel. The water may be conceived as nearly stagnant to this small distance from the border of the section. Or, to speak more accurately, the diminution of the progressive velocity occasioned by the friction and adhesion of the sides, decreases very rapidly as we recede from the sides, and ceases to be sensible at a very small distance.

The writer of this article verified this by a very simple and instructive experiment. He was making experiments on the production of vortices, in the manner suggested by Sir Isaac Newton, by whirling a very accurate and smoothly polished cylinder in water; and he found that the rapid motion of the surrounding water was confined to an exceeding small distance from the cylinder, and it was not till after many revolutions that it was sensible even at the distance of half an inch. We may, by the way, suggest this as the best form of experiments for examining the resistances of pipes. The motion excited by the whirling cylinder in the stagnant water is equal and opposite to the motion lost by water passing along a surface equal to that of the cylinder with the same velocity. Be this as it may, we are justified in considering, with Mr Buat, the section of the stream as thus diminished by cutting off a narrow border all round the touching parts, and supposing that the motion and discharge is the same as if the root of the mean depth of the section were diminished by a small quantity, nearly constant. We see, too, that the effect of this must be insensible in great canals and rivers; so that, fortunately, its quantity is best ascertained by experiments made with small pipes. This is attended with another convenience, in the opinion of Mr Buat, namely, that the effect

effect of viscosity is most sensible in great masses of water in flow motion, and is almost insensible in small pipes, so as not to disturb these experiments. We may therefore assume 297 as the general value of $\frac{\sqrt{mg}}{\sqrt{d-0.1}}$.

Since we have $\frac{\sqrt{mg}}{\sqrt{d-0.1}} = 297$, we have also $m = \frac{297^2}{g} \sqrt{d-0.1}^2 = \frac{88209}{362} (\sqrt{d-0.1})^2 = 243.7 (\sqrt{d-0.1})^2$. This we may express by $n (\sqrt{d-0.1})^2$. And thus, when we have expressed the effect of friction by $\frac{V^2}{m}$, the quantity m is variable, and its general value is $\frac{V^2}{n (\sqrt{d-0.1})^2}$, in which n is an invariable abstract number equal to 243.7, given by the nature of the resistance which water sustains from its bed, and which indicates its intensity.

And, lastly, since $m = n (\sqrt{d-0.1})^2$, we have $\sqrt{mg} = \sqrt{ng} (\sqrt{d-0.1})$, and the expression of the velocity V , which water acquires and maintains along any channel whatever, now becomes $V = \frac{\sqrt{ng} (\sqrt{d-0.1})}{X}$, or $\frac{297 (\sqrt{d-0.1})}{X}$, in which

X is also a variable quantity, depending on the slope of the surface or channel, and expressing the accelerating force which, in the case of water in train, is in equilibrium with the resistances expressed by the numerator of the fraction.

Having so happily succeeded in ascertaining the variations of resistance, let us accompany Mr Buat in his investigation of the law of acceleration, expressed by the value of X .

Experience, in perfect agreement with any distinct opinions that we can form on this subject, had already showed him, that the resistances increased in a slower ratio than that of the squares of the velocities, or that the velocities increased slower than \sqrt{s} . Therefore, in the formula $V = \frac{\sqrt{ng} (\sqrt{d-0.1})}{X}$, which, for one

channel, we may express thus, $V = \frac{A}{X}$, we must admit that X is sensibly equal to \sqrt{s} when the slope is very small or s very great. But, that we may accurately express the velocity in proportion as the slope augments, we must have X greater than \sqrt{s} ; and moreover, $\frac{\sqrt{s}}{X}$ must increase as \sqrt{s} diminishes. These conditions are necessary, that our values of V , deduced from the formula $V = \frac{A}{X}$, may agree with the experiment.

In order to comprehend every degree of slope, we must particularly attend to the motion through pipes, because open canals will not furnish us with instances of exact TRAINS with great slopes and velocities. We can make pipes vertical. In this case $\frac{1}{s}$ is $\frac{1}{1}$, and the velocity is the greatest possible for a train by the action of gravity: But we can give greater velocities than this

by increasing the head of water beyond what produces the velocity of the train. Theory.

Let AB (fig. 10.) be a vertical tube, and let CA be the head competent to the velocity in the tube, which we suppose to be in train. The slope is 1, and the full weight of the column in motion is the precise

measure of the resistance. The value of $\frac{1}{s}$, considered as a slope, is now a maximum; but, considered as expressing the proportion of the weight of the column in motion to the weight which is in equilibrium with the resistance, it may not be a maximum; it may surpass unity, and s may be less than 1. For if the vessel be filled to E, the head of water is increased, and will produce a greater velocity, and this will produce a greater resistance. The velocity being now greater, the head EF which imparts it must be greater than CA. But it will not be equal to EA, because the uniform velocities are found to increase faster than the square roots of the pressures. This is the general fact. Therefore F is above A, and the weight of the column FB, now employed to overcome the resistance, is greater than the weight of the column AB in motion.

In such cases, therefore, $\frac{1}{s}$, greater than unity, is a sort of fictitious slope, and only represents the proportion of the resistance to the weight of the moving column. This proportion may surpass unity.

But it cannot be infinite: For supposing the head of water infinite; if this produce a finite velocity, and we deduct from the whole height the height corresponding to this finite velocity, there will remain an infinite head, the measure of an infinite resistance produced by a finite velocity. This does not accord with the observed law of the velocities, where the resistances actually do not increase as fast as the squares of the velocities. Therefore an infinite head would have produced an infinite velocity, in opposition to the resistances: taking off the head of the tube, competent to this velocity, at the entry of the tube, which head would also be infinite, the remainder would in all probability be finite, balancing a finite resistance.

Therefore the value of s may remain finite, although the velocity be infinite; and this is agreeable to all our clearest notions of the resistances.

Adopting this principle, we must find a value of X which will answer all these conditions. 2. It must be sensibly proportional to \sqrt{s} , while s is great. It must always be less than \sqrt{s} . 3. It must deviate from the proportion of \sqrt{s} , so much the more as \sqrt{s} is smaller. 4. It must not vanish when the velocity is infinite. 5. It must agree with a range of experiments with every variety of channel and of slope.

We shall understand the nature of this quantity X better by representing by lines the quantities concerned in forming it.

If the velocities were exactly as the square roots of the slopes, the equilateral hyperbola NKS (fig. 10. n° 2) between its asymptotes MA, AB, would represent the equation $V = \frac{A}{\sqrt{s}}$. The values of \sqrt{s} would be represented by the abscissæ, and the velocities by the ordinates, and $V \sqrt{s} = A$ would be the power of the hyperbola. But since these velocities are not sensibly equal

Theory.

equal to $\frac{A}{\sqrt{s}}$ except when \sqrt{s} is very great, and deviate the more from this quantity as \sqrt{s} is smaller; we may represent the velocities by the ordinates of another curve PGT, which approaches very near to the hyperbola, at a great distance from A along AB; but separates from it when the abscissas are smaller: so that if AQ represents that value of \sqrt{s} (which we have seen may become less than unity), which corresponds to an infinite velocity, the line QO may be the asymptote of the new curve. Its ordinates are equal to $\frac{A}{X}$ while those of the hyperbola are equal to $\frac{A}{\sqrt{s}}$. Therefore the ratio of these ordinates or $\frac{\sqrt{s}}{X}$ should be such that it shall be so much nearer to unity as \sqrt{s} is greater, and shall surpass it so much the more as \sqrt{s} is smaller.

To express X therefore as some function of \sqrt{s} so as to answer these conditions, we see in general that X must be less than \sqrt{s} . And it must not be equal to any power of \sqrt{s} whose index is less than unity, because then $\frac{\sqrt{s}}{X}$ would differ so much the more from unity as \sqrt{s} is greater. Nor must it be any multiple of \sqrt{s} such as $q\sqrt{s}$, for the same reason. If we make $X = \sqrt{s} - K$, K being a constant quantity, we may answer the first condition pretty well. But K must be very small, that X may not become equal to nothing, except in some exceedingly small value of \sqrt{s} . Now the experiments will not admit of this, because the ratio $\frac{\sqrt{s}}{\sqrt{s} - K}$ does not increase sufficiently to correspond with the velocities which we observe in certain slopes, unless we make K greater than unity, which again is inconsistent with other experiments. We learn from such canvassing that it will not do to make K a constant quantity. If we should make it any fractionary power of \sqrt{s} , it would make $X = 0$, that is, nothing, when $s = 1$, which is also contrary to experience. It would seem, therefore, that nothing will answer for K but some power of \sqrt{s} which has a variable index. The logarithm of \sqrt{s} has this property. We may therefore try to make $X = \sqrt{s} - \log \sqrt{s}$. Accordingly if we try

the equation $V = \frac{A}{\sqrt{s} - \text{hyp. log. } \sqrt{s}}$, we shall find a very great agreement with the experiments till the declivity becomes considerable, or about $\frac{1}{25}$, which is much greater than any river. But it will not agree with the velocities observed in some mill courses, and in pipes of a still greater declivity, and gives a velocity that is too small; and in vertical pipes the velocity is not above one half of the true one. We shall get rid of most of these incongruities if we make K consist of the hyperbolic logarithm of \sqrt{s} augmented by a small constant quantity, and by trying various values for this constant quantity, and comparing the results with experiment, we may hit on one sufficiently exact for all practical purposes.

Mr De Buat, after repeated trials, found that he would have a very great conformity with experiment

by making $K = \log \sqrt{s} + 1,6$, and that the velocities exhibited in his experiments would be very well represented by the formula $V = \frac{297(\sqrt{s} - 0,1)}{\sqrt{s} - 1,6 \log \sqrt{s} + 1,6}$.

There is a circumstance which our author seems to have overlooked on this occasion, and which is undoubtedly of great effect in these motions, viz. the mutual adhesion of the particles of water. This causes the water which is descending (in a vertical pipe for example) to drag more water after it, and thus greatly increases its velocity. We have seen an experiment in which the water issued from the bottom of a reservoir through a long vertical pipe having a very gentle taper. It was 15 feet long, one inch diameter at the upper end, and two inches at the lower. The depth of the water in the reservoir was exactly one foot; in a minute there were discharged $2\frac{2}{3}$ cubic feet of water. It must therefore have issued through the hole in the bottom of the reservoir with the velocity of 8,85 feet per second. And yet we know that this head of water could not make it pass through the hole with a velocity greater than 6,56 feet per second. This increase must therefore have arisen from the cause we have mentioned, and is a proof of the great intensity of this force. We doubt not but that the discharge might have been much more increased by proper contrivances; and we know many instances in water pipes where this effect is produced in a very great degree.

The following case is very distinct: Water is brought into the town of Dunbar in the county of East Lothian from a spring at the distance of about 3200 yards. It is conveyed along the first 1100 yards in a pipe of two inches diameter, and the declivity is 12 feet nine inches; from thence the water flows in a pipe of $1\frac{1}{2}$ inches, with a declivity of 44 feet 3 inches, making in all 57 feet. When the work was carried as far as the two-inch pipe reached, the discharge was found to be 27 Scotch pints, of $103\frac{1}{2}$ cubic inches each in a minute. When it was brought into the town, the discharge was 28. Here it is plain that the descent along the second stretch of the pipe could derive no impulsion from the first. This was only able to supply 27 pints, and to deliver it into a pipe of equal bore. It was not equivalent to the forcing it into a smaller pipe, and almost doubling its velocity. It must therefore have been dragged into this smaller pipe by the weight of what was descending along it, and this water was exerting a force equivalent to a head of 16 inches, increasing the velocity from 14 to about 28.

It must be observed, that if this formula be just, there can be no declivity so small that a current of water will not take place in it. And accordingly none has been observed in the surface of a stream when this did not happen. But it also should happen with respect to any declivity of bottom. Yet we know that water will hang on the sloping surface of a board without proceeding further. The cause of this seems to be the adhesion of the water combined with its viscosity. The viscosity of a fluid presents a certain force which must be overcome before any current can take place.

A series of important experiments were made by our author in order to ascertain the relation between the velocity at the surface of any stream and that at the

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theory. the bottom. These are curious and valuable on many accounts. One circumstance deserves our notice here, viz. that the difference between the superficial and bottom velocities of any stream are proportional to the square roots of the superficial velocities. From what has been already said on the gradual diminution of the velocities among the adjoining filaments, we must conclude that the same rule holds good with respect to the velocity of separation of two filaments immediately adjoining. Hence we learn that this velocity of separation is in all cases indefinitely small, and that we may, without danger of any sensible error, suppose it a constant quantity in all cases.

58 constant of the ele- force employed overcoming the viscosity, We think, with our ingenious author, that on a review of these circumstances, there is a constant or invariable portion of the accelerating force employed in overcoming this viscosity and producing this mutual separation of the adjoining filaments. We may express this part of the accelerating force by a part $\frac{1}{S}$ of that slope which constitutes the whole of it. If it were not employed in overcoming this resistance, it would produce a velocity which (on account of this resistance)

is not produced, or is lost. This would be $\frac{A}{\sqrt{S-L}\sqrt{S}}$. This must therefore be taken from the velocity exhibited by our general formula. When thus corrected, it would become $V = (\sqrt{d}-0,1) \left(\frac{\sqrt{ng}}{\sqrt{S-L}\sqrt{S+1,6}} - \frac{\sqrt{ng}}{\sqrt{S-L}\sqrt{S}} \right)$. But as the term $\frac{\sqrt{ng}}{\sqrt{S-L}\sqrt{S}}$ is compounded only of constant quantities, we may express it by a single number. This has been collected from a scrupulous attention to the experiments (especially in canals and great bodies of water moving with very small velocities; in which case the effects of viscosity must become more remarkable), and it appears

that it may be valued at $\sqrt{\frac{1}{0,09}}$ or 0,3 inches very nearly.

From the whole of the foregoing considerations, drawn from nature, supported by such reasoning as our most distinct notions of the internal motions will admit, and authorised by a very extensive comparison with experiment, we are now in a condition to conclude a complete formula, expressive of the uniform motion of water, and involving every circumstance which appears to have any share in the operation.

Therefore let

59 formula effecting uniform motion of ter. V represent the mean velocity, in inches per second, of any current of water, running uniformly, or which is IN TRAIN, in a pipe or open channel, whose section, figure, and slope, are constant, but its length indefinite.

d the hydraulic mean depth, that is, the quotient arising from dividing the section of the channel, in square inches, by its border, expressed in linear inches.

s The slope of the pipe, or of the surface of the current. It is the denominator of the fraction expressing this slope, the numerator being always unity; and is had by dividing the expanded length of the pipe or channel by the difference of height of its two extremities.

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g The velocity (in inches per second) which a heavy body acquires by falling during one second.

n An abstract constant number, determined by experiment to be 243,7.

L the hyperbolic logarithm of the quantity to which it is prefixed, and is had by multiplying the common logarithm of that quantity by 2,3026.

We shall have in every instance

$$V = \frac{\sqrt{ng}(\sqrt{d}-0,1)}{\sqrt{S-L}\sqrt{S+1,6}} - 0,3(\sqrt{d}-0,1)$$

This, in numbers, and English measure, is

$$V = \frac{307(\sqrt{d}-0,1)}{\sqrt{S-L}\sqrt{S+1,6}} - 0,3(\sqrt{d}-0,1)$$

And in French measure

$$V = \frac{297(\sqrt{d}-0,1)}{\sqrt{S-L}\sqrt{S+1,6}} - 0,3(\sqrt{d}-0,1)$$

The following table contains the real experiments from which this formula was deduced, and the comparison of the real velocities with the velocities computed by the formula. It consists of two principal sets of experiments. The first are those made on the motion of water in pipes. The second are experiments made on open canals and rivers. In the first set, column 1st contains the number of the experiment; 2d, the length of the tube; 3d, the height of the reservoir; 4th, the values of S, deduced from column second and third; 5th gives the observed velocities; and 6th the velocities calculated by the formula.

In the second set, column 2d gives the area of the section of the channel; 3d, the border of the canal or circumference of the section, deducting the horizontal width, which sustains no friction; 4th, the square root \sqrt{d} of the hydraulic mean depth; 5th, the denominator S of the slope; 6th, the observed mean velocities; and 7th, the mean velocities by the formula. In the last ten experiments on large canals and a natural river the 6th column gives the observed velocities at the surface.

SET I. Experiments on Pipes.

Experiments by Chevalier DE BUAT.

Nº	Length of Pipe.	Height of Reservoir.	Values of s.	Velocities observed.	Velocities calculated.
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Vertical Tube $\frac{1}{2}$ of a Line in Diameter and $\sqrt{d} = 0,117851$.

	Inch.	Inch.	Inch.	Inch.	Inch.
1	12	16,166	0,75636	11,704	12,006
2	12	13,125	0,9307	9,753	10,576

Vertical Pipe $1\frac{1}{2}$ Lines Diameter, and $\sqrt{d} = 0,176776$ Inch.

3	34,166	42,166	0,9062	45,468	46,210
4	Do.	38,333	0,9951	43,156	43,721
5	Do.	36,666	1,0396	42,385	42,612
6	Do.	35,333	1,0781	41,614	41,714

M m

The

60 Table containing the experiments from which the formula is deduced.

The same Pipe horizontal.

N ^o	Length of Pipe	Height of Reservoir	Values of s	Velocities observed.	Velocities calculated.
	Inch.	Inch.	Inch.	Inch.	Inch.
7	34,166	14,583	2,5838	26,202	25,523
8	Do.	9,292	4,0367	21,064	19,882
9	Do.	5,292	7,036	14,642	14,447
10	Do.	2,083	7,6378	7,320	2,351

Vertical Pipe 2 Lines Diameter, and $\sqrt{a}=0,204124$.

11	36,25	51,250	0,85451	64,373	64,945
12	Do.	45,250	0,96338	59,605	60,428
13	Do.	47,916	1,03808	57,220	57,838
14	Do.	38,750	1,12047	54,186	55,321

Same Pipe with a slope of $\frac{1}{1,3024}$.

15	36,25	33,500	1,29174	51,151	50,983
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Same Pipe horizontal.

16	36,25	15,292	2,7901	33,378	33,167
17	Do.	8,875	4,76076	25,430	24,553
18	Do.	5,292	7,89587	19,940	18,313
19	Do.	2,042	20,01637	10,620	10,492

Vertical Pipe 2 $\frac{2}{3}$ Lines Diameter, and $\sqrt{a}=0,245798$.

20	36,25	53,250	0,95235	85,769	85,201
21	Do.	50,250	1,00642	82,471	82,461
22	Do.	48,333	1,0444	81,646	80,698
23	Do.	48,333	1,0444	79,948	
24	Do.	47,916	1,0529	81,027	80,318
25	Do.	44,750	1,1241	76,079	77,318
26	Do.	41,250	1,2157	73,811	73,904

The same Pipe with the slope $\frac{1}{1,3024}$.

27	36,25	37,5	1,3323	70,822	70,138
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The same Pipe Horizontal.

28	36,25	20,166	2,4303	51,956	50,140
29	Do.	9,083	5,2686	33,577	32,442
30	Do.	7,361	6,4504	28,658	28,801
31	Do.	5,	9,3573	23,401	23,195
32	Do.	4,916	9,5097	22,989	22,974
33	Do.	4,833	9,6652	22,679	22,754
34	Do.	3,708	12,4624	19,587	19,550
35	Do.	2,713	16,3135	16,631	16,324
36	Do.	2,083	21,6639	14,295	14,003
37	Do.	1,625	27,5102	12,680	12,115
38	Do.	0,833	52,3427	7,577	8,215

Pipes sensibly Horizontal $\sqrt{a}=0,5$, or 1 Inch Diameter.

39	117	36	5,6503	84,945	85,524
40	117	26,666	7,48	71,301	72,617
41	138,5	20,950	10,3215	58,808	60,034
42	117	18	10,7880	58,310	58,472

N ^o	Length of Pipe.	Height of Reservoir.	Values of s .	Velocities observed	Velocities calculated.
	Inch.	Inch.	Inch.	Inch.	Inch.
43	138,5	6	33,1962	29,341	29,663
44	737	23,7	33,6658	28,669	29,412
45	Do.	14,6	54,2634	21,856	22,056
46	Do.	13,7	57,7772	20,970	21,240
47	Do.	12,32	64,1573	19,991	19,950
48	Do.	8,96	87,8679	16,6252	16,543
49	Do.	8,96		16,2843	
50	Do.	7,780	101,0309	15,112	15,232
51	Do.	5,93	132,1617	13,315	13,005
52	Do.	4,2	186,0037	10,6713	10,656
53	Do.	4,2		10,4413	
54	138,5	0,7	257,8863	8,689	8,824
55	737	0,5	1540,75	3,623	3,218
56	737	0,15	5113,42	1,589	1,647

Experiments by the Abbé BOSSUT.

Horizontal Pipe 1 Inch Diameter $\sqrt{a}=0,5$.

57	600	12	54,5966	22,282	21,975
58	600	4	161,312	12,223	11,756

Horizontal Pipe 1 $\frac{1}{2}$ Inch Diameter $\sqrt{a}=0,5774$.

59	360	24	19,0781	48,534	49,515
60	720	24	33,6166	34,473	35,130
61	360	12	37,0828	33,160	33,106
62	1080	24	48,3542	28,075	28,211
63	1440	24	63,1806	24,004	24,023
64	720	12	66,3020	23,360	23,345
65	1800	24	78,0532	21,032	21,182
66	2160	24	92,9474	18,896	19,096
67	1080	12	95,8756	18,943	18,749
68	1440	12	125,6007	16,128	15,991
69	1800	12	155,4015	14,066	14,119
70	2160	12	185,2487	12,560	12,750

Horizontal Pipe 2,01 Inch Diameter $\sqrt{a}=0,708946$.

71	360	24	21,4709	58,903	58,803
72	720	24	35,8082	43,	43,136
73	360	12	41,2759	40,322	39,587
74	1080	24	50,4119	35,765	35,096
75	1440	24	65,1448	30,896	30,096
76	720	12	70,1426	29,215	28,796
77	1800	24	79,8487	27,470	26,639
78	2160	24	94,7901	27,731	24,079
79	1080	12	99,4979	23,806	23,400
80	1440	12	129,0727	20,707	20,076
81	1800	12	158,7512	18,304	17,788
82	2160	12	188,5179	16,377	16,097

MR COUPLET's Experiments at Versailles.

Pipe 5 Inches Diameter $\sqrt{a}=1,11803$.

83	84240	25	3378,26	5,323	5,287
84	Do.	24	3518,98	5,213	5,168
85	Do.	21,083	4005,66	4,806	4,807
86	Do.	16,750	5041,61	4,127	4,225
87	Do.	11,333	7450,42	3,154	3,388
88	Do.	5,583	15119,96	2,011	2,254

Pipe 18 Inches Diameter $\sqrt{a}=2,12132$.

89	43200	145,083	304,973	39,159	40,510
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SET.

SET II. Experiments with a Wooden Canal.

N ^o	Section of Canal.	Border of Canal.	Values of \sqrt{d} .	Values of s .	Mean Velocity observed	Mean Veloc. calc.
Trapezium Canal.						
	Inch.	Inch.	Inch.	Inch.	Inch.	In h.
90	18,84	13,06	1,20107	212	27,51	27,19
91	50,60	29,50	1,3096	212	28,92	29,88
92	83,43	26	1,7913	412	27,14	28,55
93	27,20	15,31	1,3329	427	18,28	20,39
94	39,36	18,13	1,4734	427	20,30	22,71
95	50,44	20,37	1,5736	427	22,37	24,37
96	56,43	21,50	1,6201	427	23,54	25,14
97	98,74	28,25	1,8696	432	28,29	29,06
98	100,74	28,53	1,8791	432	28,52	29,23
99	119,58	31,06	1,9622	432	30,16	30,60
100	126,20	31,91	1,9887	432	31,58	31,03
101	130,71	32,47	2,0064	432	31,89	31,32
102	135,32	33,03	2,0241	432	32,52	31,61
103	20,83	13,62	1,2367	1728	8,94	8,58
104	34,37	17	1,4219	1728	9,71	9,98
105	36,77	17,56	1,4471	1728	11,45	10,17
106	42,01	18,69	1,4992	1728	12,34	10,53

Rectangular Canal.

107	34,50	21,25	1,27418	458	20,24	18,66
108	86,25	27,25	1,77908	458	28,29	26,69
109	34,50	21,25	1,27418	929	13,56	12,53
110	35,22	21,33	1,28499	1412	9,20	10,01
111	51,75	23,25	1,49191	1412	12,10	11,76
112	76,19	26,08	1,70921	1412	14,17	13,59
113	105,78	29,17	1,90427	1412	15,55	15,24
114	69	25,25	1,65308	9288	4,59	4,56
115	155,25	35,25	2,09868	9288	5,70	5,86

SET III. Experiments on the Canal of JARD.

N ^o	Section of Canal.	Border of Canal.	Values of \sqrt{d} .	Values of s .	Velocity obs. at Surface.	Velocity calculated.
116	16252	402	6,3583	8919	17,42	18,77
117	11905	366	5,70320	11520	12,17	14,52
118	10475	360	5,3942	15360	15,74	11,61
119	7858	340	4,8074	21827	9,61	8,38
120	7376	337	4,6784	27648	7,79	7,07
121	6125	324	4,3475	27648	7,27	6,55

Experiments on the River Haine.

N ^o	Section of River.	Border of River.	Values of \sqrt{d} .	Values of s .	Velocity at Surface	Veloc. (mean) calcul.
122	31498	569	7,43974	6048	35,11	27,62
123	30838	601	8,03879	6413	31,77	28,76
124	30905	568	7,37632	32951	13,61	10,08
125	39639	604	8,10108	35723	15,96	10,53

This comparison must be acknowledged to be most satisfactory, and shows the great penetration and address of the author, in so successfully lifting and appreciating the share which each co-operating circumstance has had in producing the very intricate and complicated effect. It adds some weight to the principles on which he has proceeded in this analysis of the mechanism of hydraulic motion, and must give us great confidence in a theory so fairly established on a very copious induction. The author offers it only as a rational and well-founded probability. To this character it is certainly intitled; for the suppositions made in it are agreeable to the most distinct notions we can form of these internal motions. And it must always be remembered that the investigation of the formula, although it be rendered somewhat more perspicuous by thus having recourse to those notions, has no dependence on the truth of the principles. For it is, in fact, nothing but a classification of experiments, which are grouped together by some one circumstance of slope, velocity, form of section, &c. in order to discover the law of the changes which are induced by a variation of the circumstances which do not resemble. The procedure was precisely similar to that of the astronomer when he deduces the elements of an orbit from a multitude of observations. This was the task of Mr de Buat; and he candidly and modestly informs us, that the finding out analytical forms of expression which would exhibit these changes was the work of Mr Benezech de St Honoré, a young officer of engineers, and his colleague in the experimental course. It does honour to his skill and address; and we think the whole both a pretty and instructive specimen of the method of discovering the laws of nature in the midst of complicated phenomena. Daniel Bernoulli first gave the rules of this method, and they have been greatly improved by Lambert, Condorcet, and De la Grange. Mr Coulomb has given some excellent examples of their application to the discovery of the laws of friction, of magnetical and electrical attraction, &c. But this present work is the most perspicuous and familiar of them all. It is the empirical method of generalising natural phenomena, and of deducing general rules, of which we can give no other demonstration but that they are faithful representations of matters of fact. We hope that others, encouraged by the success of Mr de Buat, will follow this example, where public utility is preferred to a display of mathematical knowledge.

Although the author may not have hit upon the precise *modus operandi*, we agree with him in thinking that nature seems to act in a way not unlike what is here supposed. At any rate, the range of experiments is so extensive, and so multifarious, that few cases can occur which are not included among them. The experiments will always retain their value (as we presume that they are faithfully narrated), whatever may become of the theory; and we are confident that the formula will give an answer to any question to which it may be applicable infinitely preferable to the vague guesses of the most sagacious and experienced engineer.

We must however observe, that as the experiments on pipes were all made with scrupulous care in the contrivance and execution of the apparatus, excepting only those of Mr Couplet on the main pipes at Versailles,

Theory.

63.
The velocity given by the formula is too large for ordinary works.

we may presume that the formula gives the greatest velocities which can be expected. In ordinary works, where joints are rough or leaky, where drops of folder hang in the inside, where cocks intervene with deficient water-ways, where pipes have awkward bendings, contractions, or enlargements, and where they may contain sand or air, we should reckon on a smaller velocity than what results from our calculation; and we presume that an undertaker may with confidence promise $\frac{4}{5}$ of this quantity without any risk of disappointing his employer. We imagine that the actual performance of canals will be much nearer to the formula.

We have made inquiry after works of this kind executed in Britain, that we might compare them with the formula. But all our canals are locked and without motion; and we have only learned by an accidental information from Mr Watt, that a canal in his neighbourhood, which is 18 feet wide at the surface, and seven feet at the bottom, and four feet deep, and has a slope of one inch in a quarter of a mile, runs with the velocity of 17 inches per second at the surface, 10 at the bottom, and 14 in the middle. If we compute the motion of this canal by our formula, we shall find the mean velocity to be $13\frac{1}{2}$.

No river in the world has had its motions so much scrutinised as the Po about the end of the last century. It had been a subject of 100 years continual litigation between the inhabitants of the Bolognese and the Ferrarese, whether the waters of the Rheno should be thrown into the Tronco de Venezia or Po Grande. This occasioned very numerous measures to be taken of its sections and declivity, and the quantities of water which it contained in its different states of fullness. But, unfortunately, the long established methods of measuring waters, which were in force in Lombardy, made no account of the velocity, and not all the intreaties of Castelli, Grandi, and other moderns, could prevail on the visitors in this process to deviate from the established methods. We have therefore no minute accounts of its velocity, though there are many rough estimates to be met with in that valuable collection published at Florence in 1723, of the writings on the motion of rivers. From them we have extracted the only precise observations which are to be found in the whole work.

64.
Observations on the velocity of the Po

The Po Grande receives no river from Stellata to the sea, and its slope in that interval is found most surprisingly uniform, namely six inches in the mile (reduced to English measure). The breadth in its great freshes is 759 feet at Lago Scuro, with a very uniform depth of 31 feet. In its lowest state (in which it is called *Po Magra*), its breadth is not less than 700, and its depth about $10\frac{1}{2}$.

The Rheno has a uniform declivity from the Ponte Emilio to Vigarano of 15 inches per mile. Its breadth in its greatest freshes is 189 feet, and its depth 9.

Signor Corrade in his report says, that in the state of the great freshes the velocity of the Rheno is most exactly $\frac{4}{5}$ of that of the Po.

Grandi says that a great fresh in the Rheno employs 12 hours (by many observations of his own) to come from Ponte Emilio to Vigarano, which is 30 miles. This is a velocity of 44 inches per second. And, by Corrade's proportion, the velocity of the Po Grande must be 55 inches per second.

Montanari's observation gives the Po Magra a velocity of 31 inches per second.

Let us compare these velocities with the velocities calculated by Buat's formula.

The hydraulic mean depths d and D of the Rheno and Po in the great freshes deduced from the above measures, are 98,6 and 344 inches; and their slopes s and S are $\frac{1}{4134}$ and $\frac{1}{10165}$. This will give

$$\frac{307(\sqrt{D}-0,1)}{\sqrt{S}-L\sqrt{S+1,6}}-0,3(\sqrt{D}-0,1)=52,176 \text{ inches}$$

$$\text{and } \frac{307(\sqrt{d}-0,1)}{\sqrt{s}-L\sqrt{s+1,6}}-0,3(\sqrt{d}-0,1)=46,727 \text{ inches.}$$

These results differ very little from the velocities above mentioned. And if the velocity corresponding to a depth of 31 feet be deduced from that observed by Montanari in the Po Magra 10 feet deep, on the supposition that they are in the proportion of \sqrt{d} , it will be found to be about $53\frac{1}{2}$ inches per second.

This comparison is therefore highly to the credit of the theory, and would have been very agreeable to M. de Buat, had he known it, as we hope it is to our readers.

We have collected many accounts of water pipes, and made the comparisons, and we flatter ourselves that these have enabled us to improve the theory. They shall appear in their proper place; and we may just observe here, that the two-inch pipe, which we formerly spoke of as conveying the water to Dunbar, should have yielded only $25\frac{1}{2}$ Scotch pints per minute by the formula, instead of 27; a small error.

We have, therefore, no hesitation in saying that this single formula of the uniform motion of water is one of the most valuable presents which natural science and the arts have received during the course of this century.

We hoped to have made this fortunate investigation of the chevalier de Buat still more acceptable to our readers by another table, which should contain the values of

$$\frac{307}{\sqrt{s}-L\sqrt{s+1,6}}$$

ready calculated for every declivity that can occur in water pipes, canals, or rivers. Aided by this, which supercedes the only difficult part of the computation, a person could calculate the velocity for any proposed case in less than two minutes. But we have not been able to get it ready for its appearance in this article, but we shall not fail to give it when we resume the subject in the article *WATER-Works*; and we hope even to give its results on a scale which may be carried in the pocket, and will enable the unlearned practitioner to solve any question with accuracy in half a minute.

We have now established in some measure a THEORY OF HYDRAULICS, by exhibiting a general theorem which expresses the relation of the chief circumstances of all such motions as have attained a state of permanency, in so far as this depends on the magnitude, form, and slope of the channel. This permanency we have expressed by the term *TRAIN*, saying that the stream is in train.

We proceed to consider the subordinate circumstances contained in this theorem; such as, 1st, The forms which nature or art may give to the bed of a running stream, and the manner of expressing this form in our theorem. 2^d, The gradations of the velocity, by which

it decreases in the different filaments, from the axis or most rapid filament to the border; and the connection of this with the mean velocity, which is expressed by our formula. 3d, Having acquired some distinct notions of this, we shall be able to see the manner in which undisturbed nature works in forming the beds of our rivers, the forms which she affects, and which we must imitate in all their local modifications, if we would secure that permanency which is the evident aim of all her operations. We shall here learn the mutual action of the current and its bed, and the circumstances which ensure the stability of both. These we may call the *regimen* or the *conservation* of the stream, and may say that it is in *regimen*, or in *conservation*. This has a relation, not to the dimensions and the slope alone, or to the accelerating force and the resistance arising from mere inertia; it respects immediately the tenacity of the bed, and is different from the *train*.

4th, These pieces of information will explain the deviation of rivers from the rectilinear course; the resistance occasioned by these deviations; and the circumstances on which the regimen of a winding stream depends.

§ 1. Of the Forms of the Channel.

THE numerator of the fraction which expresses the velocity of a river in train has \sqrt{a} for one of its factors. That form, therefore, is most favourable to the motion which gives the greatest value to what we have called the hydraulic mean depth d . This is the prerogative of the semicircle, and here d is equal to half the radius; and all other figures of the same area are the more favourable, as they approach nearer to a semicircle. This is the form, therefore, of all conduit pipes, and should be taken for aqueducts which are built of masonry. Ease and accuracy of execution, however, have made engineers prefer a rectangular form; but neither of these will do for a channel formed out of the ground. We shall soon see that the semicircle is incompatible with a regimen; and, if we proceed through the regular polygons, we shall find that the half hexagon is the only one which has any pretensions to a regimen; yet experience shows us, that even its banks are too steep for almost any soil. A dry earthen bank, not bound together by grass roots, will hardly stand with a slope of 45 degrees; and a canal which conveys running waters will not stand with this slope. Banks whose base is to their height as 4 to 3 will stand very well in moist soils, and this is a slope very usually given. This form is even affected in the spontaneous operations of nature, in the channels which she digs for the rills and rivulets in the higher and steeper grounds.

This form has some mathematical and mechanical properties which intitle it to some further notice. Let ABEC (fig. 11.) be such a trapezium, and AHGC the rectangle of equal width and depth. Bisection HB and EG by the verticals FD and KI, and draw the verticals b B, c C. Because AH : HB = 3 : 4, we have AB = 5, and BD = 2, and FD = 3, and BD + DF = BA. From these premises it follows, that the trapezium ABEC has the same area with the rectangle; for HB being bisected in D, the triangles ACF, BCD are equal. Also the border ABEC, which is touched by the passing stream, is equal to FDIK. Therefore the mean depth, which is the quotient of the area divided by the border, is the same in both; and this is the

case, whatever is the width BE at the bottom, or even though there be no rectangle such as b BE c interposed between the slant sides.

Of all rectangles, that whose breadth is twice the height, or which is half of a square, gives the greatest mean depth. If, therefore, FK be double of FD, the trapezium ABEC, which has the same area, will have the largest mean depth of any such trapezium, and will be the best form of a channel for conveying running waters. In this case, we have AC = 10, AH = 3, and BE = 2. Or we may say that the best form is a trapezium, whose bottom width is $\frac{2}{3}$ of the depth, and whose extreme width is $\frac{4}{3}$. This form approaches very near to that which the torrents in the hills naturally dig for themselves in uniform ground, where their action is not checked by stones which they lay bare, or which they deposit in their course. This shows us, and it will be fully confirmed by and by, that the channel of a river is not a fortuitous thing, but has a relation to the consistency of the soil and velocity of the stream.

A rectangle, whose breadth is $\frac{4}{3}$ of the depth of water, will therefore have the same mean depth with a triangle whose surface width is $\frac{2}{3}$ of its vertical depth; for this is the dimensions when the rectangle b BE c is taken away.

Let A be the area of the section of any channel, w its width (when rectangular), and b its depth of water. Then what we have called its mean depth, or d , will be

$$\frac{A}{w + 2b} = \frac{wb}{w + 2b}.$$
 Or if q expresses the ratio of the width to the depth of a rectangular bed; that is, if $q = \frac{w}{b}$, we have a very simple and ready expression for the mean depth, either from the width or depth. For $d = \frac{w}{q + 2}$, or $d = \frac{qb}{q + 2}$.

Therefore, if the depth were infinite, and the width finite, we should have $d = \frac{w}{2}$; or if the width be infinite,

and the depth finite, we have $d = b$. And these are the limits of the values of d ; and therefore, in rivers whose width is always great in comparison of the depth, we may without much error take their real depth for their hydraulic mean depth. Hence we derive a rule of easy recollection, and which will at all times give us a very near estimate of the velocity and expence of a running stream, viz. that the velocities are nearly as the square roots of the depths. We find this confirmed by many experiments of Michelotti.

Also, when we are allowed to suppose this ratio of the velocities and depths, that is, in a rectangular canal of great breadth and small depth, we shall have the quantities discharged nearly in the proportion of the cubes of the velocities. For the quantity discharged d is as the velocity and area jointly, that is, as the height and velocity jointly, because when the width is the same the area is as the height. Therefore, we have $d \propto b v$. But, by the above remark, $b \propto v^2$. Therefore, $d \propto v^3$; and this is confirmed by the experiments of Bossut, vol. ii. 236. Also, because d is as vb , when w is constant, and by the above remark (allowable when w is very great in proportion to b) v is as \sqrt{b} , we have d as $b\sqrt{b}$, or $b^{\frac{3}{2}}$, or the squares of the discharges

Theory.

70
Best form of a channel.71
Estimate of the expence of a running stream.

pro-

Theory. proportional to the cubes of the heights in rectangular beds, and in their corresponding trapeziums.

72 Rules for finding the width and real depth, we can determine the dimensions, w and b , of the bed, and we have $w = qd + 2d$, and $b = d + \frac{2d}{q}$.

2. If we know the area and mean depth, we can in like manner find the dimensions, that is, w and b ; for $A = wb$, and $d = \frac{wb}{w + 2b}$; therefore $w = \frac{+\sqrt{A^2 - 2A} + \frac{A}{2d}}$.

3. If d be known, and one of the dimensions be given, we can find the other; for $d = \frac{wb}{w + 2b}$ gives

$$w = \frac{2bd}{b - d}, \text{ and } b = \frac{wd}{w - 2d}.$$

73 Mean depth,

4. If the velocity V and the slope S for a river in train be given, we can find the mean depth; for $V = \left(\frac{297}{\sqrt{S - L\sqrt{S + 1.6}}} - 0.3 \right) (\sqrt{d} - 0.1)$. Whence we deduce $\sqrt{d} - 0.1 = \frac{V}{297 \left(\sqrt{S - L\sqrt{S + 1.6}}} - 0.3 \right)}$, and

$$\sqrt{d} = \text{to this quantity} + 0.1.$$

74 And slope.

5. We can deduce the slope which will put in train a river whose channel has given dimensions. We make $\frac{297(\sqrt{d} - 0.1)}{V + 0.3(\sqrt{d} - 0.1)} = \sqrt{S}$. This should be $\sqrt{S - L\sqrt{S + 1.6}}$, which we correct by trials, which will be exemplified when we apply these doctrines to practice.

Having thus established the relation between the different circumstances of the form of the channel to our general formula, we proceed to consider,

§ 2. *The gradations of velocity from the middle of the stream to the sides.*

THE knowledge of this is necessary for understanding the regimen of a river; for it is the velocity of the filaments in contact with the bed which produces any change in it, and occasions any preference of one to another, in respect of regimen or stability. Did these circumstances not operate, the water, true to the laws of hydraulics, and confined within the bounds which have been assigned them, would neither enlarge nor diminish the area of the channel. But this is all that we can promise of waters perfectly clear, running in pipes or hewn channels. But rivers, brooks, and smaller streams, carry along waters loaded with mud or sand, which they deposit wherever their velocity is checked; and they tear up, on the other hand, the materials of the channel wherever their velocity is sufficiently great. Nature, indeed, aims continually at an equilibrium, and works without ceasing to perpetuate her own performances, by establishing an equality of action and reaction, and proportioning the forms and direction of the motions to her agents, and to local circumstances. Her work is slow but unceasing; and what she cannot ac-

complish in a year she will do in a century. The beds of our rivers have acquired some stability, because they are the labour of ages; and it is to time that we owe those deep and wide valleys which receive and confine our rivers in channels, which are now consolidated, and with slopes which have been gradually moderated, so that they no longer either ravage our habitations or confound our boundaries. Art may imitate nature, and by directing her operations (which she still carries on according to her own imprescriptible laws) according to our views, we can hasten her progress, and accomplish our purpose, during the short period of human life. But we can do this only by studying the unalterable laws of mechanism. These are presented to us by spontaneous nature. Frequently we remain ignorant of their foundation: but it is not necessary for the prosperity of the subject that he have the talents of the senator; he can profit by the statute without understanding its grounds. It is so in the present instance. We have not as yet been able to infer the law of retardation observed in the filaments of a running stream from any found mechanical principle. The problem, however, does not appear beyond our powers, if we assume, with Sir Isaac Newton, that the velocity of any particular filament is the arithmetical mean between those of the filaments immediately adjoining. We may be assured, that the filament in the axis of an inclined cylindrical tube, of which the current is in train, moves the fastest, and that all those in the same circumference round it are moving with one velocity, and that the slowest are those which glide along the pipe. We may affirm the same thing of the motions in a semi-cylindrical inclined channel conveying an open stream. But even in these we have not yet demonstrated the ratio between the extreme velocities, nor in the different circles. This must be decided experimentally.

And here we are under great obligations to Mr de Buat. He has compared the velocity in the axis of a prodigious number and variety of streams, differing in size, form, slope, and velocity, and has computed in them all the mean velocity, by measuring the quantities of water discharged in a given time. His method of measuring the bottom velocity was simple and just. He threw in a gooseberry, as nearly as possible, of the same specific gravity with the water. It was carried along the bottom almost without touching it. See *RESISTANCE of Fluids*, n° 67.

He discovered the following laws: 1. In small velocities the velocity in the axis is to that at the bottom in a ratio of considerable inequality. 2. This ratio diminishes as the velocity increases, and in very great velocities approaches to the ratio of equality. 3. What was most remarkable was, that neither the magnitude of the channel, nor its slope, had any influence in changing this proportion, while the mean velocity remained the same. Nay, though the stream ran on a channel covered with pebbles or coarse sand, no difference worth minding was to be observed from the velocity over a polished channel. 4. And if the velocity in the axis is constant, the velocity at the bottom is also constant, and is not affected by the depth of water or magnitude of the stream. In some experiments the depth was thrice the width, and in others the width was thrice the depth. This changed the proportion of the magnitude of the section

ry. section to the magnitude of the rubbing part, but made no change on the ratio of the velocities. This is a thing which no theory could point out.

Another most important fact was also the result of his observation, viz. that *the mean velocity in any pipe or open stream is the arithmetical mean between the velocity in the axis and the velocity at the sides of a pipe or bottom of an open stream.* We have already observed, that the ratio of the velocity in the axis to the velocity at the bottom diminished as the mean velocity increased. This variation he was enabled to express in a very simple manner, so as to be easily remembered, and to enable us to tell any one of them by observing another.

If we take unity from the square root of the superficial velocity, expressed in inches, the square of the remainder is the velocity at the bottom; and the mean velocity is the half sum of these two. Thus, if the velocity in the middle of the stream be 25 inches per second, its square root is five; from which if we take unity, there remains four. The square of this, or 16, is the velocity at the bottom, and $\frac{25 + 16}{2}$, or 20½, is the mean velocity.

This is a very curious and most useful piece of information. The velocity in the middle of the stream is the easiest measured of all, by any light small body floating down it; and the mean velocity is the one which regulates the train, the discharge, the effect on machines, and all the most important consequences.

We may express this by a formula of most easy recollection. Let V be the mean velocity, v the velocity in the axis, and u the velocity at the bottom; we have $u = \sqrt{v - 1}$, and $V = \frac{v + u}{2}$.

Also $v = (\sqrt{V - \frac{1}{2}} + \frac{1}{2})^2$, and $v = (\sqrt{u} + 1)^2$.

$V = (\sqrt{v - \frac{1}{2}})^2 + \frac{1}{4}$, and $V = (\sqrt{u} + \frac{1}{2})^2 + \frac{1}{4}$.

$$u = (\sqrt{v} - 1)^2 \text{ and } u = (\sqrt{V - \frac{1}{2}} - \frac{1}{2})^2.$$

Also $v - u = 2\sqrt{V - \frac{1}{2}}$ and $v - V = V - u = \sqrt{V - \frac{1}{2}}$: that is, the difference between these velocities increases in the ratio of the square roots of the mean velocities diminished by a small constant quantity.

This may perhaps give the mathematicians some help in ascertaining the law of degradation from the axis to the sides. Thus, in a cylindrical pipe, we may conceive the current as consisting of an infinite number of cylindrical shells sliding within each other like the draw tubes of a spy-glass. Each of these is in equilibrio, or as much accelerated by the one within it as it is retarded by the one without; therefore as the momentum of each diminishes in the proportion of its diameter (the thickness being supposed the same in all), the velocity of separation must increase by a certain law from the sides to the axis. The magnitude of the small constant quantity here spoken of seems to fix this law.

The place of the mean velocity could not be discovered with any precision. In moderate velocities it is not more than one-fourth or one-fifth of the depth distant from the bottom. In very great velocities it is sensibly higher, but never in the middle of the depth.

The knowledge of these three velocities is of great importance. The superficial velocity is easily observed; hence the mean velocity is easily computed. This multiplied by the section gives the expence; and if we also measure the expanded border, and then obtain the mean depth (or \sqrt{d}), we can, by the formula of uniform motion, deduce the slope; or, knowing the slope, we can deduce any of the other circumstances.

The following table of these three velocities will save the trouble of calculation in one of the most frequent questions of hydraulics.

Theory.

Velocity

80
Table of
the three
principal
velocities.

Velocity in Inches.			Velocity in Inches.			Velocity in Inches.		
Sur- face.	Bottom.	Mean.	Sur- face.	Bottom.	Mean.	Sur- face.	Bottom.	Mean.
1	0,000	0,5	34	23,339	28,660	67	51,639	59,319
2	0,172	1,081	35	24,167	29,583	68	52,505	60,252
3	0,537	1,768	36	25,	30,5	69	53,392	61,196
4	1,	2,5	37	25,827	31,413	70	54,273	62,136
5	1,526	3,263	38	26,667	32,333	71	55,145	63,072
6	2,1	4,050	39	27,51	33,255	72	56,025	64,012
7	2,709	4,854	40	28,345	34,172	73	56,862	64,932
8	3,342	5,67	41	29,192	35,096	74	57,790	65,895
9	4,	6,5	42	30,030	36,015	75	58,687	66,843
10	4,674	7,337	43	30,880	36,940	76	59,568	67,784
11	5,369	8,184	44	31,742	37,871	77	60,451	68,725
12	6,071	9,036	45	32,581	38,790	78	61,340	69,670
13	6,786	9,893	46	33,432	39,716	79	62,209	70,605
14	7,5'3	10,756	47	34,293	40,646	80	63,107	71,553
15	8,254	11,622	48	35,151	41,570	81	64,	72,5
16	9,	12,5	49	36,	42,5	82	64,883	73,441
17	9,753	13,376	50	36,857	43,428	83	65,780	74,390
18	10,463	14,231	51	37,712	44,356	84	66,651	75,325
19	11,283	15,141	52	38,564	45,282	85	67,568	76,284
20	12,055	16,027	53	39,438	46,219	86	68,459	77,229
21	12,674	16,837	54	40,284	47,142	87	69,339	78,169
22	13,616	17,808	55	41,165	48,082	88	70,224	79,112
23	14,402	18,701	56	42,016	49,008	89	71,132	80,066
24	15,194	19,597	57	42,968	49,984	90	72,012	81,006
25	16,	20,5	58	43,771	50,886	91	72,915	81,957
26	16,802	21,401	59	44,636	51,818	92	73,788	82,894
27	17,606	22,303	60	45,509	52,754	93	74,719	83,859
28	18,421	23,210	61	46,376	53,688	94	75,603	84,801
29	19,228	24,114	62	47,259	54,629	95	76,51	85,755
30	20,044	25,022	63	48,136	55,568	96	77,370	86,685
31	20,857	25,924	64	49,	56,5	97	78,305	87,652
32	21,678	26,839	65	49,872	57,436	98	79,192	88,596
33	22,506	27,753	66	50,751	58,376	99	80,120	89,56
						100	81,	90,5

The knowledge of the velocity at the bottom is of the greatest use for enabling us to judge of the action of the stream on its bed; and we shall now make some observations on this particular.

81
Operation
of the
stream on
its bed,

Every kind of soil has a certain velocity consistent with the stability of the channel. A greater velocity would enable the waters to tear it up, and a smaller velocity would permit the deposition of more moveable materials from above. It is not enough, then, for the stability of a river, that the accelerating forces are so adjusted to the size and figure of its channel that the current may be in train: it must also be in equilibrio with the tenacity of the channel.

We learn from observation, that a velocity of three inches per second at the bottom will just begin to work upon fine clay fit for pottery, and however firm and compact it may be, it will tear it up. Yet no beds are more stable than clay when the velocities do not exceed this: for the water soon takes away the impalpable particles of the superficial clay, leaving the particles of sand sticking by their lower half in the rest of the clay, which they now protect, making a very permanent bottom, if the stream does not bring down gravel or coarse sand, which will rub off this very thin crust, and allow

another layer to be worn off; a velocity of six inches will lift fine sand; eight inches will lift sand as coarse as linseed; 12 inches will sweep along fine gravel; 24 inches will roll along rounded pebbles an inch diameter; and it requires three feet per second at the bottom to sweep along shivery angular stones of the size of an egg.

The manner in which unwearied nature carries on some of these operations is curious, and deserves to be noticed a little. All must recollect the narrow ridges or wrinkles which are left on the sand by a temporary fresh or stream. They are observed to lie across the stream, and each ridge consists of a steep face AD, BF (fig. H.) which looks down the stream, and a gentler slope DB, FC, which connects this with the next ridge. As the stream comes over the first steep AD, it is directed almost perpendicularly against the point E immediately below D, and thus it gets hold of a particle of coarse sand, which it could not have detached from the rest had it been moving parallel to the surface of it. It easily rolls it up the gentle slope EB; arrived there, the particle tumbles over the ridge, and lies close at the bottom of it at F, where it is protected by the little eddy, which is formed in the very angle; other particles

icles lying about E are treated in the same way, and tumbling over the ridge B, cover the first particle, and now protect it effectually from any further disturbance. The same operation is going on at the bottom of each ridge. The brow or steep of the ridge gradually advances down the stream, and the whole set change their places, as represented by the dotted line *adbf*; and after a certain time the particle which was deposited at F is found in an unprotected situation, as it was in E, and it now makes another step down the stream.

The Abbé Bossut found, that when the velocity of the stream was just sufficient for lifting the sand (and a small excess hindered this operation altogether) a ridge advanced about 20 feet in a day.

Since the current carries off the most moveable matters of the channel, it leaves the bottom covered with the remaining coarser sand, gravel, pebbles, and larger stones. To these are added many which come down the stream while it is more rapid, and also many which roll in from the sides as the banks wear away. All these form a bottom much more solid and immoveable than a bottom of the medium soil would have been. But this does not always maintain the channel in a permanent form; but frequently occasions great changes, by obliging the current, in the event of any sudden fresh or swell, to enlarge its bed, and even to change it altogether, by working to the right and to the left, since it cannot work downwards. It is generally from such accumulation of gravel and pebbles in the bottom of the bed that rivers change their channels.

It remains to ascertain, in absolute measures, the force which a current really exerts in attempting to drag along with it the materials of its channel; and which will produce this effect unless resisted by the inertia of these materials. It is therefore of practical importance to know this force.

Nor is it abstruse or difficult. For when a current is in train, the accelerating force is in equilibrio with the resistance, and is therefore its immediate measure. Now this accelerating force is precisely equal to the weight of the body of water in motion multiplied by the fraction which expresses the slope. The mean depth being equal to the quotient of the section divided by the border, the section is equal to the product of the mean depth multiplied by the border. Therefore, calling the border *b*, and the mean depth *d*, we have the section = *db*. The body of water in motion is therefore *db s* (because *s* was the slant length of a part whose difference of elevation is 1), and the accelerating

force is $db s \times \frac{1}{s}$, or *db*. But if we would only consider this resistance as corresponding to an unit of the length of the channel, we must divide the quantity *db*

by *s*, and the resistance is then $\frac{db}{s}$. And if we would consider the resistance only for an unit of the border, we must divide this expression by *b*; and thus this resistance (taking an inch for the unit) will be expressed for one square inch of the bed by the weight of a bulk of water which has a square inch for its base, and $\frac{d}{s}$ for its height. And lastly, if E be taken for any given superficial extent of the channel or bed, and F the

obstruction which we consider as a sort of friction, we shall have $F = \frac{Ed}{s}$.

Thus, let it be required to determine in pounds the resistance or friction on a square yard of a channel whose current is in train, which is 10 feet wide, four feet deep, and has a slope of one foot in a mile. Here E is nine feet. Ten feet width and four feet depth give a section of 40 feet. The border is 18 feet. There-

fore $d = \frac{40}{18} = 2,1111$, and *s* is 5280. Therefore the friction is the weight of a column of water whose base is nine feet, and height $\frac{2,1111}{5280}$, or nearly $3\frac{6}{10}$ ounces avoirdupois.

§ 3. Settlement of the Beds of Rivers.

HE who looks with a careless eye at a map of the world, is apt to consider the rivers which ramble over its surface as a chance-medley disposition of the drainers which carry off the waters. But it will afford a most agreeable object to a considerate and contemplative mind, to take it up in this very simple light; and having considered the many ways in which the drenched surface might have been cleared of the superfluous waters, to attend particularly to the very way which nature has followed. In following the troubled waters of a mountain torrent, or the pure streams which trickle from their bases, till he sees them swallowed up in the ocean, and in attending to the many varieties in their motions, he will be delighted with observing how the simple laws of mechanism are made so fruitful in good consequences, both by modifying the motions of the waters themselves, and also by inducing new forms on the surface of the earth, fitted for re-acting on the waters, and producing these very modifications of their motions which render them so beneficial. The permanent beds of rivers are by no means fortuitous gutters hastily scooped out by dashing torrents; but both they and the valleys through which they flow are the patient but unceasing labours of nature, prompted by goodness and directed by wisdom.

Whether we trace a river from the torrents which collect the superfluous waters of heaven, or from the springs which discharge what would otherwise be condemned to perpetual inactivity, each feeder is but a little rill which could not ramble far from its scanty source among growing plants and absorbent earth, without being sucked up and evaporated, did it not meet with other rills in its course. When united they form a body of water still inconsiderable, but much more able, by its bulk, to overcome the little obstacles to its motion; and the rivulet then moves with greater speed, as we have now learned. At the same time, the surface exposed to evaporation and absorption is diminished by the union of the rills. Four equal rills have only the surface of two when united. Thus the portion which escapes arrestment, and travels downward, is continually increasing. This is a happy adjustment to the other operations of nature. Were it otherwise, the lower and more valuable countries would be loaded with the passing waters in addition to their own surplus rains, and the immediate neighbourhood of the sea would be almost covered by the drains of the interior

simplicity and wisdom displayed in the conduct of rivers.

Theory.

countries. But, fortunately, those passing waters occupy less room as they advance, and by this wise employment of the most simple means, not only are the superfluous waters drained off from our fertile fields, but the drains themselves become an useful part of the country by their magnitude. They become the habitation of a prodigious number of fishes, which share the Creator's bounty; and they become the means of mutual communication of all the blessings of cultivated society. The vague ramblings of the rivers scatter them over the face of the country, and bring them to every door. It is not even an indifferent circumstance, that they gather strength to cut out deep beds for themselves. By this means they cut open many springs. Without this, the produce of a heavy shower would make a swamp which would not dry up in many days. And it must be observed, that the same heat which is necessary for the vigorous growth of useful plants will produce a very copious evaporation. This must return in showers much too copious for immediate vegetation, and the overplus would be destructive. Is it not pleasant to contemplate this adjustment of the great operations of nature, so different from each other, that if chance alone directed the detail, it was almost an infinite odds that the earth would be uninhabitable?

84
Their effect on the countries through which they pass.

But let us follow the waters in their operations, and note the face of the countries through which they flow: attending to the breadth, the depth, and the slope of the valleys, we shall be convinced that their present situation is extremely different from what it was in ancient days; and that the valleys themselves are the works of the rivers, or at least of waters which have descended from the heights, loaded with all the lighter matters which they were able to bring away with them. The rivers flow now in beds which have a considerable permanency; but this has been the work of ages. This has given stability, both by filling up and smoothing the valleys, and thus lessening the changing causes, and also by hardening the beds themselves, which are now covered with aquatic plants, and lined with the stones, gravel, and coarser sand, out of which all the lighter matters have been washed away.

The surface of the high grounds is undergoing a continual change; and the ground on which we now walk is, by no means the same which was trodden by our remote ancestors. The showers from heaven carry down into the valleys, or sweep along by the torrents, a part of the soil which covers the heights and steep. The torrents carry this soil into the brooks, and these deliver part of it into the great rivers, and these discharge into the sea this fertilizing fat of the earth, where it is swallowed up, and forever lost for the purposes of vegetation. Thus the hillocks lose of their height, the valleys are filled up, and the mountains are laid bare, and show their naked precipices, which formerly were covered over with a flesh and skin, but now look like the skeleton of this globe. The low countries, raised and nourished for some time by the substance of the high lands, will go in their turn to be buried in the ocean; and then the earth, reduced to a dreary flat, will become an immense uninhabitable mass. This catastrophe is far distant, because this globe is in its youth, but it is not the less certain; and the united labours of the human race could not long protract the term.

But, in the mean time, we can trace a beneficent

purpose, and a nice adjustment of seemingly remote circumstances. The grounds near the sources of all our rivers are indeed gradually stripped of their most fertile ingredients. But had they retained them for ages, the sentient inhabitants of the earth, or at least the nobler animals, with man at their head, would not have derived much advantage from it. The general laws of nature produce changes in our atmosphere which must ever render these great elevations unfruitful. That genial warmth, which is equally necessary for the useful plant as for the animal which lives on it, is confined to the lower grounds. The earth, which on the top of mount Hæmus could only bring forth moss and dittany, when brought into the gardens of Spalatro, produced pot-herbs so luxuriant, that Dioclesian told his colleague Maximian that he had more pleasure in their cultivation than the Roman empire could confer. Thus nature not only provides us manure, but conveys it to our fields. She even keeps it safe in store for us till it shall be wanted. The tracts of country which are but newly inhabited by man, such as great part of America, and the newly discovered regions of Terra Australis, are still almost occupied by marshes and lakes, or covered with impenetrable forests; and they would remain long enough in this state, if population, continually increasing, did not increase industry, and multiply the hands of cultivators along with their necessities. The Author of Nature was alone able to form the huge ridges of the mountains, to model the hillocks and the valleys, to mark out the courses of the great rivers, and give the first trace to every rivulet; but has left to man the task of draining his own habitation and the fields which are to support him, because this is a task not beyond his powers. It was therefore of immense advantage to him that those parts of the globe into which he has not yet penetrated should remain covered with lakes, marshes, and forests, which keep in store the juice of the earth, which the influence of the air and the vivifying warmth of the sun would have expended long ere now in useless vegetation, and which the rains of heaven would have swept into the sea, had they not been thus protected by their situation or their cover. It is therefore the business of man to open up these mines of hoarded wealth, and to thank the Author of all good, who has thus husbanded them for his use, and left them as a rightful heritage for those of after days.

The earth had not in the remote ages, as in our day, those great canals, those capacious voiders, always ready to drain off the rain waters (of which only part is absorbed by the thirsty ground), and the pure waters of the springs from the foot of the hills. The rivers did not then exist, or were only torrents, whose waters, confined by the gullies and glens, are searching for a place to escape. Hence arise those numerous lakes in the interior of great continents, of which there are still remarkable relicks in North America, which in process of time will disappear, and become champaign countries. The most remote from the sea, unable to contain its waters, finds an issue through some gorge of the hills, and pours over its superfluous waters into a lower basin, which, in its turn, discharges its contents into another, and the last of the chain delivers its waters by a river into the ocean. The communication was originally begun by a simple overflowing at the lowest part of the margin. This made a torrent, which quickly

quickly deepened its bed; and this circumstance increasing its velocity, as we have seen, would extend this deepening backward to the lake, and draw off more of its waters. The work would go on rapidly at first, while earth and small stones only resisted the labours of nature; but these being washed away, and the channel hollowed out to the firm rock on all sides, the operation must go on very slowly, till the immense cascade shall undermine what it cannot break off, and then a new discharge will commence, and a quantity of flat ground will emerge all round the lake. The torrent, in the mean time, makes its way down the country, and digs a canal, which may be called the first sketch of a river, which will deepen and widen its bed continually. The waters of several basins united, and running together in a great body, will (according to the principles we have established) have a much greater velocity, with the same slope, than those of the lakes in the interior parts of the continent; and the sum of them all united in the basin next the sea, after having broken through its natural mound, will make a prodigious torrent, which will dig for itself a bed so much the deeper as it has more slope and a greater body of waters.

The formation of the first valleys, by cutting open many springs which were formerly concealed under ground, will add to the mass of running waters, and contribute to drain off the waters of these basins. In course of time many of them will disappear, and flat valleys among the mountains and hills are the traces of their former existence.

When nature thus traces out the courses of future rivers, it is to be expected that those streams will most deepen their channels which in their approach to the sea receive into their bed the greatest quantities of rain and spring waters, and that towards the middle of the continent they will deepen their channels less. In these last situations the natural slope of the fields causes the rain-water, rills, and the little rivulets from the springs, to seek their way to the rivers. The ground can sink only by the flattening of the hills and high grounds; and this must proceed with extreme slowness, because it is only the gentle, though incessant, work of the rains and springs. But the rivers, increasing in bulk and strength, and of necessity flowing over every thing, form to themselves capacious beds in a more yielding soil, and dig them even to the level of the ocean.

The beds of rivers by no means form themselves in one inclined plane. If we should suppose a canal AB (fig. 12.) perfectly straight and horizontal at B, where it joins with the sea, this canal would really be an inclined channel of greater and greater slope as it is farther from B. This is evident; because gravity is directed towards the centre of the earth, and the angle CAB contained between the channel and the plumb-line at A is smaller than the similar angle CDB; and consequently the inclination to the horizon is greater in A than in D. Such a canal therefore would make the bed of a river; and some have thought that this was the real form of nature's work; but the supposition is a whim, and it is false. No river has a slope at all approaching to this. It would be 8 inches declivity in the mile next the ocean, 24 inches in the second mile, 40 inches in the third, and so on in the duplicate ratio (for the whole elevation) of the distances from the sea. Such a river would quickly tear up its bed in the moun-

tains (were there any grounds high enough to receive it), and, except its first cascade, would soon acquire a more gentle slope. But the fact is, and it is the result of the imprescriptible laws of nature, that the continued track of a river is a succession of inclined channels, whose slope diminishes by steps as the river approaches to the sea. It is not enough to say that this results from the natural slope of the countries through which it flows, which we observe to increase in declivity as we go to the interior parts of the continent. Were it otherwise, the equilibrium to which nature aims in all her operations would still produce the gradual diminution of the slope of rivers. Without it they could not be in a permanent train.

That we may more easily form a notion of the manner in which the permanent course of a river, is established, let us suppose a stream or rivulet *sa* (fig. 13.) far up the country, make its way through a soil perfectly uniform to the sea, taking the course *s a b c d e f*, and receiving the permanent additions of the streams *g a*, *h b*, *i c*, *k d*, *l e*, and that its velocity and slope in all its parts are so suited to the tenacity of the soil and magnitude of its section, that neither do its waters during the annual freshes tear up its banks or deepen its bed, nor do they bring down from the high lands materials which they deposit in the channel in times of smaller velocity. Such a river may be said to be in a permanent state, to be in conservation, or to have stability. Let us call this state of a river its REGIMEN, denoting by the word the proper adjustment of the velocity of the stream to the tenacity of the channel. The velocity of its regimen must be the same throughout, because it is this which regulates its action on the bottom, which is the same from its head to the sea. That its bed may have stability, the mean velocity of the current must be constant, notwithstanding the inequality of discharge through its different sections by the brooks which it receives in its course, and notwithstanding the augmentation of its section as it approaches the sea.

On the other hand, it behoved this exact regimen to commence at the mouth of the river, by the working of the whole body of the river, in concert with the waters of the ocean, which always keep within the same limits, and make the ultimate level invariable. This working will begin to dig the bed, giving it as little breadth as possible: for this working consists chiefly in the efforts of falls and rapid streams, which arise of themselves in every channel which has too much slope. The bottom deepens, and the sides remain very steep, till they are undermined and crumble down; and being then diluted in the water, they are carried down the stream, and deposited where the ocean checks its speed. The banks crumble down anew, the valley or hollow forms; but the section, always confined to its bottom, cannot acquire a great breadth, and it retains a good deal of the form of the trapezium formerly mentioned. In this manner does the regimen begin to be established from *f* to *e*.

With respect to the next part *d e*, the discharge or produce is diminished by the want of the brook *l e*. It must take a similar form, but its area will be diminished, in order that its velocity may be the same; and its mean depth *d* being less than in the portion *e f* below, the slope must be greater. Without these conditions we could not have the uniform velocity, which the assumed

Theory.

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This process of nature89
Confirmed by example.90
Effect of freshes.

permanency in an uniform soil necessarily supposes. Reasoning after the same manner for all the portions *cd, bc, ab, sa*, we see that the regimen will be successively established in them, and that the slope necessary for this purpose will be greater as we approach the river head. The vertical section or profile of the course of the river *sabcdef* will therefore resemble the line *SABCDEF* which is sketched below, having its different parts variously inclined to the horizontal line *HF*.

Such is the process of nature to be observed in every river on the surface of the globe. It long appeared a kind of puzzle to the theorists; and it was this observation of the increasing, or at least this continued velocity with smaller slope, as the rivers increased by the addition of their tributary streams, which caused Guglielmini to have recourse to his new principle, the energy of deep waters. We have now seen in what this energy consists. It is only a greater quantity of motion remaining in the middle of a great stream of water after a quantity has been retarded by the sides and bottom; and we see clearly, that since the addition of a new and perhaps an equal stream does not occupy a bed of double surface, the proportion of the retardations to the remaining motion must continually diminish as a river increases by the addition of new streams. If therefore the slope were not diminished, the regimen would be destroyed, and the river would dig up its channel. We have a full confirmation of this in the many works which have been executed on the Po, which runs with rapidity through a rich and yielding soil. About the year 1600, the waters of the Panaro, a very considerable river, were added to the Po Grande; and although it brings along with it in its freshes a vast quantity of sand and mud, it has greatly deepened the whole Tronco di Venezia from the confluence to the sea. This point was clearly ascertained by Manfredi about the 1720, when the inhabitants of the valleys adjacent were alarmed by the project of bringing in the waters of the Rheno, which then ran through the Ferrarese. Their fears were overcome, and the Po Grande continues to deepen its channel every day with a prodigious advantage to the navigations; and there are several extensive marshes which now drain off by it, after having been for ages under water: and it is to be particularly remarked, that the Rheno is the foulest river in its freshes of any in that country. We insert this remark, because it may be of great practical utility, as pointing out a method of preserving and even improving the depth of rivers or drains in flat countries, which is not obvious, and rather appears improper: but it is strictly conformable to a true theory, and to the operations of nature, which never fails to adjust every thing so as to bring about an equilibrium. Whatever the declivity of the country may have been originally, the regimen begins to be settled at the mouths of the rivers, and the slopes are diminished in succession as we recede from the coast. The original slopes inland may have been much greater; but they will (when busy nature has completed her work) be left somewhat, and only so much greater, that the velocity may be the same notwithstanding the diminution of the section and mean depth.

Freshes will disturb this methodical progress relative only to the successive permanent additions; but their effects chiefly accelerate the deepening of the bed, and

the diminution of the slope, by augmenting the velocity during their continuance. But when the regimen of the permanent additions is once established, the freshes tend chiefly to widen the bed, without greatly deepening it: for the aquatic plants, which have been growing and thriving during the peaceable state of the river, are now laid along, but not swept away, by the freshes and protect the bottom from their attacks; and the stones and gravel, which must have been left bare in a course of years, working on the soil, will also collect in the bottom, and greatly augment its power of resistance; and even if the floods should have deepened the bottom some small matter, some mud will be deposited as the velocity of the freshes diminishes, and this will remain till the next flood.

We have supposed the soil uniform through the whole course: This seldom happens; therefore the circumstances which insure permanency, or the regimen of a river, may be very different in its different parts and in different rivers. We may say in general, that the farther that the regimen has advanced up the stream in any river, the more slowly will it convey its waters to the sea.

There are some general circumstances in the motion of rivers which it will be proper to take notice of just now, that they may not interrupt our more minute examination of their mechanism, and their explanations will then occur of themselves as corollaries of the propositions which we shall endeavour to demonstrate.

In a valley of small width the river always occupies the lowest part of it; and it is observed, that this is seldom in the middle of the valley, and is nearest to that side on which the slope from the higher grounds is steepest, and this without regard to the line of its course. The river generally adheres to the steepest hills, whether they advance into the plain or retire from it. This general feature may be observed over the whole globe. It is divided into compartments by great ranges of mountains; and it may be observed, that the great rivers hold their course not very far from them, and that their chief feeders come from the other side. In every compartment there is a swell of the low country at a distance from the bounding ridge of mountains; and on the summit of this swell the principal feeders of the great river have their sources.

The name *valley* is given with less propriety to these immense regions, and is more applicable to tracks of champaign land which the eye can take in at one view. Even here we may observe a resemblance. It is not always in the very lowest part of this valley that the river has its bed; although the waters of the river flow in a channel below its immediate banks, these banks are frequently higher than the grounds at the foot of the hills. This is very distinctly seen in Lower Egypt, by means of the canals which are carried backward from the Nile for accelerating its fertilizing inundations. When the qalishes are opened to admit the waters, it is always observed that the districts most remote are the first covered, and it is several days before the immediately adjoining fields partake of the blessing. This is a consequence of that general operation of nature by which the valleys are formed. The river in its floods is loaded with mud, which it retains as long as it rolls rapidly along its limited bed, tumbling its waters over and over, and taking up in every spot as much as it

theory. it deposits: but as soon as it overflows its banks, the very enlargement of its section diminishes the velocity of the water; and it may be observed still running in the track of its bed with great velocity, while the waters on each side are stagnant at a very small distance: Therefore the water, on getting over the banks, must deposit the heaviest, the firmest, and even the greatest part of its burden, and must become gradually clearer to it approaches the hills. Thus a gentle slope is given as the valley in a direction which is the reverse of what one would expect. It is, however, almost always the case in wide valleys, especially if the great river comes through a soft country. The banks of the brooks and ditches are observed to be deeper as they approach the river, and the merely superficial drains run backwards from it.

We have already observed, that the enlargement of the bed of a river, in its approach to the sea, is not in proportion to the increase of its waters. This would be the case even if the velocity continued the same: and therefore, since the velocity even increases, in consequence of the greater energy of a large body of water, which we now understand distinctly, a still smaller bed is sufficient for conveying all the water to the sea.

This general law is broken, however, in the immediate neighbourhood of the sea; because in this situation the velocity of the water is checked by the passing flood-tides of the ocean. As the whole waters must still be discharged, they require a larger bed, and the enlargement will be chiefly in width. The sand and mud are deposited when the motion is retarded. The depth of the mouth of the channel is therefore diminished. It must therefore become wider. If this be done on a coast exposed to the force of a regular tide, which carries the waters of the ocean across the mouth of the river, this regular enlargement of the mouth will be the only consequence, and it will generally widen till it washes the foot of the adjoining hills; but if there be no tide in the sea, or a tide which does not set across the mouth of the river, the sands must be deposited at the sides of the opening, and become additions to the shore, lengthening the mouth of the channel. In this sheltered situation, every trivial circumstance will cause the river to work more on particular parts of the bottom, and deepen the channel there. This keeps the mud suspended in such parts of the channel, and it is not deposited till the stream has shot farther out into the sea. It is deposited on the sides of those deeper parts of the channel, and increases the velocity in them, and thus still farther protracts the deposition. Rivers so situated will not only lengthen their channels, but will divide them, and produce islands at their mouths. A bush, a tree torn up by the roots by a mountain torrent, and floated down the stream, will thus inevitably produce an island; and rivers in which this is common will be continually shifting their mouths. The Mississippi is a most remarkable instance of this. It has a long course through a rich soil, and disembogues itself into the bay of Mexico, in a place where there is no *passing tide*, as may be seen by comparing the hours of high water in different places. No river that we know carries down its stream such numbers of rooted-up trees: they frequently interrupt the navigation, and render it always dangerous in the night.

Theory This river is so beset with flats and shifting sands at its mouth, that the most experienced pilots are puzzled; and it has protruded its channel above 50 miles in the short period that we have known it. The discharge of the Danube is very similar: so is that of the Nile; for it is discharged into a still corner of the Mediterranean. It may now be said to have acquired considerable permanency; but much of this is owing to human industry, which strips it as much as possible of its subsidenceable matter. The Ganges too is in a situation pretty similar, and exhibits similar phenomena. The Maragnon might be noticed as an exception; but it is not an exception. It has flowed very far in a level bed, and its waters come pretty clear to Para; but besides, there is a strong transverse tide, or rather current, at its mouth, setting to the south-east both during flood and ebb. The mouth of the Po is perhaps the most remarkable of any on the surface of this globe, and exhibits appearances extremely singular. Its discharge is into a sequestered corner of the Adriatic. Though there be a more remarkable tide in this gulf than in any part of the Mediterranean, it is still but trifling, and it either sets directly in upon the mouth of the river, or retires straight away from it. The river has many mouths, and they shift prodigiously. There has been a general increase of the land very remarkable. The marshes where Venice now stands were, in the Augustan age, everywhere penetrable by the fishing boats, and in the 5th century could only bear a few miserable huts; now they are covered with crowds of stately buildings. Ravenna, situated on the southernmost mouth of the Po, was, in the Augustan age, at the extremity of a swamp, and the road to it was along the top of an artificial mound, made by Augustus at immense expence. It was, however, a fine city, containing extensive docks, arsenals, and other massy buildings, being the great military port of the empire, where Augustus laid up his great ships of war. In the Gothic times it became almost the capital of the Western empire, and was the seat of government and of luxury. It must, therefore, be supposed to have every accommodation of opulence, and we cannot doubt of its having paved streets, wharfs, &c.; so that its wealthy inhabitants were at least walking-dryfooted from house to house. But now it is an Italian mile from the sea, and surrounded with vineyards and cultivated fields, and is accessible in every direction. All this must have been formed by depositions from the Po, flowing through Lombardy loaded with the spoils of the Alps, which were here arrested by the reeds and bulrushes of the marsh. These things are in common course; but when wells are dug, we come to the pavements of the ancient city, and these pavements are all on one exact level, and they are *eight feet below the surface of the sea at low water*. This cannot be ascribed to the subsiding of the ancient city. This would be irregular, and greatest among the heavy buildings. The tomb of Theodoric remains, and the pavement round it is on a level with all the others. The lower story is always full of water; so is the lower story of the cathedral to the depth of three feet. The ornaments of both these buildings leave no room to doubt that they were formerly dry; and such a building as the cathedral could not sink without crumbling into pieces.

It is by no means easy to account for all this. These depositions

Theory. depositions of the Po and other rivers must raise the ground; and yet the rivers must still flow over all. We must conclude that the surface of the Adriatic is by no means level, and that it slopes like a river from the Lagoon of Venice to the eastward. In all probability it even slopes considerably outwards from the shore. This will not hinder the alternations of ebb and flow tide, as will be shown in its proper place. The whole shores of this gulph exhibit most uncommon appearances.

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Rivers
are convex
athwart
the stream,
and the
cause of it.

The last general observations which we shall make in this place is, that the surface of a river is not flat, considered athwart the stream, but convex: this is owing to its motion. Suppose a canal of stagnant water; its surface would be a perfect level. But suppose it possible by any means to give the middle waters a motion in the direction of its length, they must drag along with them the waters immediately contiguous. These will move less swiftly, and will in like manner drag the waters without them; and thus the water at the sides being abstracted, the depth must be less, and the general surface must be convex across. The fact in a running stream is similar to this; the side waters are withheld by the sides, and every filament is moving more slowly than the one next it towards the middle of the river, but faster than the adjoining filament on the land side. This alone must produce a convexity of surface. But besides this, it is demonstrable that the pressure of a running stream is diminished by its motion, and the diminution is proportional to the height which would produce the velocity with which it is gliding past the adjoining filament. This convexity must in all cases be very small. Few rivers have the velocity nearly equal to eight feet *per* second, and this requires a height of one foot only. An author quoted by Mr Buffon says, that he has observed on the river Aveyron an elevation of three feet in the middle during floods; but we suspect some error in the observation.

§ 4. Of the Windings of Rivers.

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Winding
course of
rivers, how
formed.

RIVERS are seldom straight in their course. Formed by the hand of nature, they are accommodated to every change of circumstance. They wind around what they cannot get over, and work their way to either side according as the resistance of the opposite bank makes a straight course more difficult; and this seemingly fortuitous rambling distributes them more uniformly over the surface of a country, and makes them every where more at hand, to receive the numberless rills and rivulets which collect the waters of our springs and the superfluities of our showers, and to comfort our habitations with the many advantages which cultivation and society can derive from their presence. In their feeble beginnings the smallest inequality of slope or consistency is enough to turn them aside and make them ramble through every field, giving drink to our herds and fertility to our soil. The more we follow nature into the minutiae of her operations, the more must we admire the inexhaustible fertility of her resources, and the simplicity of the means by which she produces the most important and beneficial effects. By thus twisting the course of our rivers into 10,000 shapes, she keeps them long amidst our fields, and thus compensates for the declivity of the surface, which otherwise would tumble them with great rapidity into the ocean, loaded with the best and richest of our soil. Without this, the

showers of heaven would have little influence in supplying the waste of incessant evaporation. But as things are, the rains are kept slowly trickling along the sloping sides of our hills and steeps, winding round every clod, nay every plant, which lengthens their course, diminishes their slope, checks their speed, and thus prevents them from quickly brushing off from every part of the surface the lightest and best of the soil. The flattest of our holm lands would be too steep, and the rivers would shoot along through our finest meadows, hurrying every thing away with them, and would be unfit for the purposes of inland conveyance, if the inequalities of soil did not make them change this headlong course for the more beautiful meanders which we observe in the course of the small rivers winding through our meadows. Those rivers are in general the straightest in their course which are the most rapid, and which roll along the greatest bodies of water; such are the Rhone, the Po, the Danube. The smaller rivers continue more devious in their progress, till they approach the sea, and have gathered strength from all their tributary streams.

Every thing aims at an equilibrium, and this directs even the ramblings of rivers. It is of importance to understand the relation between the force of a river and the resistance which the soil opposes to those deviations from a rectilinear course; for it may frequently happen that the general procedure of nature may be inconsistent with our local purposes. Man was set down on this globe, and the task of cultivating it was given him by nature, and his chief enjoyment seems to be to struggle with the elements. He must not find things to his mind, but he must mould them to his own fancy. Yet even this seeming anomaly is one of nature's most beneficent laws; and his exertions must still be made in conformity with the general train of the operations of mechanical nature: and when we have any work to undertake relative to the course of rivers, we must be careful not to thwart their general rules, otherwise we shall be sooner or later punished for their infraction. Things will be brought back to their former state, if our operations are inconsistent with that equilibrium which is constantly aimed at, or some new state of things which is equivalent will be soon induced. If a well regulated river has been improperly deepened in some place, to answer some particular purpose of our own, or if its breadth has been improperly augmented, we shall soon see a deposition of mud or sand choak up our fancied improvements; because, as we have enlarged the section without increasing the slope or the supply, the velocity must diminish, and floating matters must be deposited.

It is true, we frequently see permanent channels where the forms are extremely different from that which the waters would dig for themselves in an uniform soil, and which approaches a good deal to the trapezium described formerly. We see a greater breadth frequently compensate for a want of depth; but all such deviations are a sort of constraint, or rather are indications of inequality of soil. Such irregular forms are the works of nature; and if they are permanent, the equilibrium is obtained. Commonly the bottom is harder than the sides, consisting of the coarsest of the sand and of gravel; and therefore the necessary section can be obtained only by increasing the width. We

ory. are accustomed to attend chiefly to the appearances which prognosticate mischief, and we interpret the appearances of a permanent bed in the same way, and frequently form very false judgments. When we see one bank low and flat, and the other high and abrupt, we suppose that the waters are passing along the first in peace, and with a gentle stream, but that they are rapid on the other side, and are tearing away the bank; but it is just the contrary. The bed being permanent, things are in equilibrium, and each bank is of a form just competent to that equilibrium. If the soil on both sides be uniform, the stream is most rapid on that side where the bank is low and flat, for in no other form would it withstand the action of the stream; and it has been worn away till its flatness compensates for the greater force of the stream. The stream on the other side must be more gentle, otherwise the bank could not remain abrupt. In short, in a state of permanency, the velocity of the stream and form of the bank are just suited to each other. It is quite otherwise before the river has acquired its proper regimen.

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A careful consideration therefore of the general features of rivers which have settled their regimen, is of use for informing us concerning their internal motions, and directing us to the most effectual methods of regulating their course.

We have already said that perpendicular brims are inconsistent with stability. A semicircular section is the form which would produce the quickest train of a river whose expence and slope are given; but the banks at B and D (fig. 14.) would crumble in, and lie at the bottom, where their horizontal surface would secure them from farther change. The bed will acquire the form G c F, of equal section, but greater width, and with brims less shelving. The proportion of the velocities at A and c may be the same with that of the velocities at A and C; but the velocity at G and F will be less than it was formerly at B, C, or D; and the velocity in any intermediate point E, being somewhat between those at F and c, must be less than it was in any intermediate point of the semicircular bed. The velocities will therefore decrease along the border from c towards G and F, and the steepness of the border will augment at the same time, till, in every point of the new border G c F, these two circumstances will be so adjusted that the necessary equilibrium is established.

The same thing must happen in our trapezium. The slope of the brims may be exact, and will be retained; it will, however, be too great anywhere below, where the velocity is greater, and the sides will be worn away till the banks are undermined and crumble down, and the river will maintain its section by increasing its width. In short, no border made up of straight lines is consistent with that gradation of velocity which will take place whenever we depart from a semicircular form. And we accordingly see, that in all natural channels the section has a curvilinear border, with the slope increasing gradually from the bottom to the brim.

These observations will enable us to understand how nature operates when the inequality of surface or of tenacity obliges the current to change its direction, and the river forms an elbow.

Supposing always that the discharge continues the same, and that the mean velocity is either preserved or

restored, the following conditions are necessary for a 'Theory. permanent regimen.

1. The depth of water must be greater in the elbow than anywhere else.
2. The main stream, after having struck the concave bank, must be reflected in an equal angle, and must then be in the direction of the next reach of the river.
3. The angle of incidence must be proportioned to the tenacity of the soil.
4. There must be in the elbow an increase of slope, or of head of water, capable of overcoming the resistance occasioned by the elbow.

The reasonableness, at least, of these conditions will appear from the following considerations.

1. It is certain that force is expended in producing this change of direction in a channel which by supposition diminishes the current. The diminution arising from any cause which can be compared with friction must be greater when the stream is directed against one of the banks. It may be very difficult to state the proportion, and it would occupy too much of our time to attempt it; but it is sufficient that we be convinced that the retardation is greater in this case. We see no cause to increase the mean velocity in the elbow, and we must therefore conclude that it is diminished. But we are supposing that the discharge continues the same; the section must therefore augment, or the channel increase its transverse dimensions. The only question is, In what manner it does this, and what change of form does it affect, and what form is competent to the final equilibrium and the consequent permanency of the bed? Here there is much room for conjecture. Mr Buat reasons as follows. If we suppose that the points B and C (fig. 15.) continue on a level, and that the points H and I at the beginning of the next reach are also on a level, it is an inevitable consequence that the slope along CMI must be greater than along BEH, because the depression of H below B is equal to that of I below C, and BEH is longer than CMI. Therefore the velocity along the convex bank CMI must be greater than along BEH. There may even be a stagnation and an eddy in the contrary direction along the concave bank. Therefore, if the form of the section were the same as up the stream, the sides could not stand on the convex bank. When therefore the section has attained a permanent form, and the banks are again in equilibrium with the action of the current, the convex bank must be much flatter than the concave. If the water is really still on the concave bank, that bank will be absolutely perpendicular; nay, may overhang.—Accordingly, this state of things is matter of daily observation, and justifies our reasoning, and entitles us to say, that this is the nature of the internal motion of the filaments which we cannot distinctly observe. The water moves most rapidly along the convex bank, and the thread of the stream is nearest to this side. Reasoning in this way, the section, which we may suppose to have been originally of the form M b a E (fig. 16.) assumes the shape MBAE.

2. Without presuming to know the mechanism of the internal motions of fluids, we know that superficial waves are reflected precisely as if they were elastic bodies, making the angles of incidence and reflection equal. In as far therefore as the superficial wave is concerned in the operation, Mr Buat's second position is just.

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The permanency of the next reach requires that its axis shall be in the direction of the line EP which makes the angle $GEP = FEN$. If the next reach has the direction EQ, MR, the wave reflected in the line ES will work on the bank at S, and will be reflected in the line ST, and work again on the opposite bank at T. We know that the effect of the superficial motion is great, and that it is the principal agent in destroying the banks of canals. So far therefore Mr Buat is right. We cannot say with any precision or confidence how the actions of the under filaments are modified; but we know no reason for not extending to the under filaments what appears so probable with respect to the surface-water.

3. The third position is no less evident. We do not know the mode of action of the water on the bank; but our general notions on this subject, confirmed by common experience, tell us that the more obliquely a stream of water beats on any bank, the less it tends to undermine it or wash it away. A stiff and cohesive soil therefore will suffer no more from being almost perpendicularly buffeted by a stream than a friable sand would suffer from water gliding along its face. Mr Buat thinks, from experience, that a clay bank is not sensibly affected till the angle FEB is about 36 degrees.

4. Since there are causes of retardation, and we still suppose that the discharge is kept up, and that the mean velocity, which had been diminished by the enlargement of the section, is again restored, we must grant that there is provided, in the mechanism of these motions, an accelerating force adequate to this effect. There can be no accelerating force in an open stream but the superficial slope. In the present case it is undoubtedly so; because by the deepening of the bottom where there is an elbow in the stream, we have of necessity a counter slope. Now, all this head of water, which must produce the augmentation of velocity in that part of the stream which ranges round the convex bank, will arise from the check which the water gets from the concave bank. This occasions a gorge or swell up the stream, enlarges a little the section at BVC; and this, by the principle of uniform motion, will augment all the velocities, deepen the channel, and put every thing again into its train as soon as the water gets into the next reach. The water at the bottom of this basin has very little motion, but it defends the bottom by this very circumstance.

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them.

Such are the notions which Mr de Buat entertains of this part of the mechanism of running waters. We cannot say that they are very satisfactory, and they are very opposite to the opinions commonly entertained on the subject. Most persons think that the motion is most rapid and turbulent on the side of the concave bank, and that it is owing to this that the bank is worn away till it become perpendicular, and that the opposite bank is flat, because it has not been gnawed away in this manner. With respect to this general view of the matter, these persons may be in the right; and when a stream is turned into a crooked and yielding channel for the first time, this is its manner of action. But Mr Buat's aim is to investigate the circumstances which obtain in the case of a regimen; and in this view he is undoubtedly right as to the facts, though his mode of accounting for these facts may be erroneous. And as

this is the only useful view to be taken of the subject, it ought chiefly to be attended to in all our attempts to procure stability to the bed of a river, without the expensive helps of masonry, &c. If we attempt to secure permanency by deepening on the inside of the elbow, our bank will undoubtedly crumble down, diminish the passage, and occasion a more violent action on the hollow bank. The most effectual mean of security is to enlarge the section: and if we do this on the inside bank, we must do it by widening the stream very much, that we may give a very sloping bank. Our attention is commonly drawn to it when the hollow bank is giving way, and with a view to stop the ravages of the stream. Things are not now in a state of permanency, but nature is working in her own way to bring it about. This may not suit *our* purpose, and we must thwart her. The phenomena which we then observe are frequently very unlike to those described in the preceding paragraphs. We see a violent tumbling motion in the stream towards the hollow bank. We see an evident accumulation of water on that side, and the point B is frequently higher than C. This regorging of the water extends to some distance, and is of itself a cause of greater velocity, and contributes, like a head of stagnant water, to force the stream through the bend, and to deepen the bottom. This is clearly the case when the velocity is excessive, and the hollow bank able to abide the shock. In this situation the water thus heaped up escapes where it best can; and as the water, obstructed by an obstacle put in its way, escapes by the sides, and there has its velocity increased, so here the water gorged up against the hollow bank swells over towards the opposite side, and passes round the convex bank with an increased velocity. It depends much on the adjustment between the velocity and consequent accumulation, and the breadth of the stream and the angle of the elbow, whether this augmentation of velocity shall reach the convex bank; and we sometimes see the motion very languid in that place, and even depositions of mud and sand are made there. The whole phenomena are too complicated to be accurately described in general terms, even in the case of perfect regimen: for this regimen is relative to the consistence of the channel; and when this is very great, the motions may be most violent in every quarter. But the preceding observations are of importance, because they relate to ordinary cases and to ordinary channels.

It is evident, from Mr Buat's second position, that the proper form of an elbow depends on the breadth of the stream as well as on the radius of curvature, and that every angle of elbow will require a certain proportion between the width of the river and the radius of the sweep. Mr Buat gives rules and formulæ for all these purposes, and shows that in one sweep there may be more than one reflection or rebound. It is needless to enlarge on this matter of mere geometrical discussion. It is with the view of enabling the engineer to trace the windings of a river in such a manner that there shall be no rebounds which shall direct the stream against the sides, but preserve it always in the axis of every reach. This is of consequence, even when the bends of the river are to be secured by masonry or piling; for we have seen the necessity of increasing the section, and the tendency which the waters have to deepen the channel on that side where the rebound is made. This tends

to

to undermine our defences, and obliges us to give them deeper and more solid foundations in such places. But any person accustomed to the use of the scale and compasses will form to himself rules of practice equally sure and more expeditious than Mr de Buat's formulae.

We proceed, therefore, to what is more to our purpose, the consideration of the resistance caused by an elbow, and the methods of providing a force capable of overcoming it. We have already taken notice of the salutary consequences arising from the rambling course of rivers, inasmuch as it more effectually spreads them over the face of a country. It is no less beneficial by diminishing their velocity. This it does both by lengthening their course, which diminishes the declivity, and by the very resistance which they meet with at every bend. We derive the chief advantages from our rivers, when they no longer shoot their way from precipice to precipice, loaded with mud and sand, but peaceably roll along their clear waters, purified during their gentler course, and offer themselves for all the purposes of pasturage, agriculture, and navigation. The more a river winds its way round the foot of the hills, the more is the resistance of its bed multiplied; the more obstacles it meets with in its way from its source to the sea, the more moderate is its velocity; and instead of tearing up the very bowels of the earth, and digging for itself a deep trough, along which it sweeps rocks and rooted-up trees, it flows with majestic pace even with the surface of our cultivated grounds, which it embellishes and fertilizes.

We may with safety proceed on the supposition, that the force necessary for overcoming the resistance arising from a rebound is as the square of the velocity; and it is reasonable to suppose it proportional to the square of the sine of the angle of incidence, and this for the reasons given for adopting this measure of the general *Resistance of Fluids*. It cannot, however, claim a greater confidence here than in that application; and it has been shown in that article with what uncertainty and limitations it must be received. We leave it to our readers to adopt either this or the simple ratio of the sines, and shall abide by the duplicate ratio with Mr Buat, because it appears by his experiments that this law is very exactly observed in tubes in inclinations not exceeding 40° ; whereas it is in these small angles that the application to the general resistance of fluids is most in fault. But the correction is very simple, if this value shall be found erroneous. There can be little doubt that the force necessary for overcoming the resistance will increase as the number of rebounds.—Therefore we may express the resistance, in general, by the formula $r = \frac{V^2 s^2 n}{m}$; where

r is the resistance, V the mean velocity of the stream, s the sine of the angle of incidence, n the number of equal rebounds (that is, having equal angles of incidence), and m is a number to be determined by experiment. Mr de Buat made many experiments on the resistance occasioned by the bendings of pipes, none of which differed from the result of the above formula above one part in twelve; and he concludes, that the

resistance to one bend may be estimated at $\frac{V^2 s^2}{3000}$.

The experiment was in this form: A pipe of 1 inch diameter, and 10 feet long, was formed with 10 re-

bounds of 36° each. A head of water was applied to it, which gave the water a velocity of six feet *per second*. Another pipe of the same diameter and length, but without any bendings, was subjected to a pressure of a head of water, which was increased till the velocity of efflux was also six feet *per second*. The additional head of water was $5\frac{1}{8}$ inches. Another of the same diameter and length, having one bend of $24^\circ 34'$, and running 85 inches *per second*, was compared with a straight pipe having the same velocity, and the difference of the heads of water was $\frac{1}{100}$ of an inch. A computation from these two experiments will give the above result, or in English measure, $r = \frac{V^2 s^2}{3200}$.

very nearly. It is probable that this measure of the resistance is too great; for the pipe was of uniform diameter even in the bends: whereas in a river properly formed, where the regimen is exact, the capacity of the section of the bend is increased.

The application of this theory to inclined tubes and to open streams is very obvious, and very legitimate and safe. Let AB (fig. 17.) be the whole height of the reservoir A B I K, and B C the horizontal length of a pipe, containing any number of rebounds, equal or unequal, but all regular, that is, constructed according to the conditions formerly mentioned. The whole head of water should be conceived as performing, or as divided into portions which perform, three different offices.—

One portion, $AD = \frac{V^2}{505}$, impels the water into the

entry of the pipe with the velocity with which it really moves in it; another portion EB is in equilibrio with the resistances arising from the mere length of the pipe expanded into a straight line; and the third portion DE serves to overcome the resistance of the bends. If, therefore, we draw the horizontal line B C, and, taking the pipe B C out of its place, put it in the position D H, with its mouth C in H, so that D H is equal to B C, the water will have the same velocity in it that it had before. *N. B.* For greater simplicity of argument, we may suppose that when the pipe was inserted at B, its bends lay all in a horizontal plane, and that when it is inserted at D, the plane in which all its bends lie slopes only in the direction D H, and is perpendicular to the plane of the figure. We repeat it, the water will have the same velocity in the pipes B C and D H, and the resistances will be overcome. If we now prolong the pipe D H towards L to any distance, repeating continually the same bendings in a series of lengths, each equal to D H, the motion will be continued with the velocity corresponding to the pressure of the column A D; because the declivity of the pipe is augmented in each length equal to D H, by a quantity precisely sufficient for overcoming all the resistances in that length; and the true slope in these cases is B E + E D, divided by the expanded length of the pipe B C or D H.

The analogy which we were enabled to establish between the uniform motion or the train of pipes and of open streams, intitles us now to say, that when a river has bendings, which are regularly repeated at equal intervals, its slope is compounded of the slope which is necessary for overcoming the resistance of a straight channel of its whole expanded length, agreeably to

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the formula for uniform motion, and of the slope which is necessary for overcoming the resistance arising from its bendings alone.

Thus, let there be a river which, in the expanded course of 6000 fathoms, has 10 elbows, each of which has 30° of rebound; and let its mean velocity be 20 inches in a second. If we would learn its whole slope in this 6000 fathoms, we must first find (by the formula of uniform motion) the slope s which will produce the velocity of 20 inches in a straight river of this length, section, and mean depth. Suppose this to be

$\frac{1}{17855}$, or 20 inches in this whole length. We must then find (by the formula $\frac{V^2 \sin^2}{3200}$) the slope necessary

for overcoming the resistance of 10 rebounds of 30° each. This we shall find to be $6\frac{1}{2}$ inches in the 6000 fathoms. Therefore the river must have a slope of $26\frac{1}{2}$ inches in 6000 fathoms, or $\frac{1}{17855}$; and this slope will produce the same velocity which 20 inches, or $\frac{1}{17855}$, would do in a straight running river of the same length.

PART II. PRACTICAL INFERENCES.

HAVING thus established a theory of a most important part of hydraulics, which may be considered in as a just representation of nature's procedure, we shall apply it to the examination of the chief results of every thing which art has contrived for limiting the operations of nature, or modifying them so as to suit our particular views. Trusting to the detail which we have given of the connecting principles, and the chief circumstances which co-operate in producing the ostensible effect; and supposing that such of our readers as are interested in this subject will not think it too much trouble to make the applications in the same detail; we shall content ourselves with merely pointing out the steps of the process, and showing their foundation in the theory itself: and frequently, in place of the direct analysis which the theory enables us to employ for the solution of the problems, we shall recommend a process of approximation by trial and correction, sufficiently accurate, and more within the reach of practical engineers. We are naturally led to consider in order the following articles.

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Approximation by trial and correction recommended to practical engineers.

1. The effects of permanent additions of every kind to the waters of a river, and the most effectual methods of preventing or removing inundations.

2. The effects of weirs, bars, sluices, and keeps of every kind, for raising the surface of a river; and the similar effects of bridges, piers, and every thing which contracts the section of the stream.

3. The nature of canals; how they differ from rivers in respect of origin, discharge, and regimen, and what conditions are necessary for their most perfect construction.

4. Canals for draining land, and drafts or canals of derivation from the main stream. The principles of their construction, so that they may suit their intended purposes, and the change which they produce on the main stream, both above and below the point of derivation.

Of the effects of permanent additions to the waters of a river.

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Problems and examples on the effects of permanent additions to the waters of a river.

FROM what has been said already, it appears that to every kind of soil or bed there corresponds a certain velocity of current, too small to hurt it by digging it up, and too great to allow the deposition of the materials which it is carrying along. Supposing this known for any particular situation, and the quantity of water which the channel must of necessity discharge, we may wish to learn the smallest slope which must be given to this stream, that the waters may run with the required velocity. This suggests

PROB. I. Given the discharge D of a river, and V its velocity of regimen: required the smallest slope s , and the dimensions of its bed?

Since the slope must be the smallest possible, the bed must have the form which will give the greatest mean depth d , and should therefore be the trapezium formerly described; and its area and perimeter are the same with those of a rectangle whose breadth is twice its height.

b . These circumstances give us the equation $\frac{D}{V} = 2b^2$. For the area of the section is twice the square of the height, and the discharge is the product of this area and the velocity. Therefore $\sqrt{\frac{D}{2V}} = b$ and $\sqrt{\frac{2D}{V}} =$ the breadth b .

The formula of uniform motion gives $\sqrt{s} = L\sqrt{s+1,6}$ $= \frac{297(\sqrt{s}-0,1)}{V+0,3(\sqrt{s}-0,1)}$. Instead of $\sqrt{s}-0,1$, put its equal $\frac{b}{2}-0,1$, and every thing being known in the second member of this equation, we easily get the value of s by a few trials after the following manner. Suppose that the second member is equal to any number, such as 9. First suppose that \sqrt{s} is = 9. Then the hyperbolic logarithm of $9+1,6$ or of $10,6$ is 2,36. Therefore we have $\sqrt{s}-L\sqrt{s+1,6} = 9-2,36 = 6,64$; whereas it should have been = 9. Therefore say $6,64 : 9 = 9 : 12,2$ nearly. Now suppose that \sqrt{s} is = 12,2. Then $L 12,2+1,6 = L 13,8 = 2,625$ nearly, and $12,2-2,625$ is 9,575, whereas it should be 9. Now we find that changing the value of \sqrt{s} from 9 to 12,2 has changed the answer from 6,64 to 9,575, or a change of 3,2 in our assumption has made a change of 2,935 in the answer, and has left an error of 0,575. Therefore say $2,935 : 0,575 = 3,2 : 0,628$. Then, taking 0,628 from 12,2, we have (for our next assumption or value of \sqrt{s}) 11,572. Now $11,572+1,6 = 13,172$, and $L 13,172$ is 2,58 nearly. Now try this last value $11,572-2,58$ is 9,008, sufficiently exact. This may serve as a specimen of the trials by which we may avoid an intricate analysis.

PROB. II. Given the discharge D , the slope s , and the velocity V , of permanent regimen, to find the dimensions of the bed.

Let x be the width, and y the depth of the channel, and S the area of the section. This must be $= \frac{D}{V}$, which is therefore $= xy$. The denominator s being given,

Let x be the width, and y the depth of the channel, and S the area of the section. This must be $= \frac{D}{V}$, which is therefore $= xy$. The denominator s being given,

given, we may make $\sqrt{s} - L\sqrt{s+1,6} = \sqrt{B}$, and the formula of mean velocity will give $V = \frac{297(\sqrt{d}-0,1)}{\sqrt{B}}$ $-0,3(\sqrt{d}-0,1)$, which we may express thus: $V = (\sqrt{d}-0,1)\left(\frac{297}{\sqrt{B}}-0,3\right)$, which gives $\frac{297}{\sqrt{B}}-0,3 = \frac{V}{\sqrt{d}-0,1}$; and finally, $\frac{V}{\frac{297}{\sqrt{B}}-0,3} + 0,1 = \sqrt{d}$.

Having thus obtained what we called the mean depth, we may suppose the section rectangular. This gives $d = \frac{xy}{x+2y}$. Thus we have two equations, $S = xy$ and $d = \frac{xy}{x+2y}$.

From which we obtain $x = \sqrt{\left(\frac{S}{2d}\right)^2 - 2S} + \frac{S}{2d}$.

And having the breadth x and area S , we have $y = \frac{S}{x}$. And then we may change this for the trapezium often mentioned.

These are the chief problems on this part of the subject, and they enable us to adjust the slope and channel of a river which receives any number of successive permanent additions by the influx of other streams. This last informs us of the rise which a new supply will produce, because the additional supply will require additional dimensions of the channel; and as this is not supposed to increase in breadth, the addition will be in depth. The question may be proposed in the following problem.

PROB. III. Given the slope s , the depth and the base of a rectangular bed (or a trapezium), and consequently the discharge D , to find how much the section will rise, if the discharge be augmented by a given quantity.

Let h be the height after the augmentation, and w the width for the rectangular bed. We have in any uniform current $\sqrt{d} = \frac{V}{\frac{297}{\sqrt{B}}-0,3}$. Raising this to a square,

and putting for d and V their values $\frac{wb}{w+2h}$ and $\frac{D}{wb}$, and

making $\frac{297}{\sqrt{B}}-0,3 = K$, the equation becomes $\frac{wb}{w+2h} = \left(\frac{D}{wbK} + 0,1\right)^2$. Raising the second member to a square, and reducing, we obtain a cubic equation, to be solved in the usual manner.

But the solution would be extremely complicated. We may obtain a very expeditious and exact approximation from this consideration, that a small change in one of the dimensions of the section will produce a much greater change in the section and the discharge than in the mean depth d . Having therefore augmented the unknown dimension, which is here the height, make use of this to form a new mean depth, and then

the new equation $\sqrt{d} = \frac{D}{wb\left(\frac{297}{\sqrt{B}}-0,3\right)} + 0,1$ will

give us another value of h , which will rarely exceed the truth by $\frac{1}{10}$. This serves (by the same process) for finding another, which will commonly be sufficiently exact. We shall illustrate this by an example.

Let there be a river whose channel is a rectangle 150 feet wide and six feet deep, and which discharges 1500 cubic feet of water per second, having a velocity of 20 inches, and slope of $\frac{1}{13333}$, or about $\frac{1}{13}$ of an inch in 100 fathoms. How much will it rise if it receives an addition which triples its discharge? and what will be its velocity?

If the velocity remained the same, its depth would be tripled; but we know by the general formula that its velocity will be greatly increased, and therefore its depth will not be tripled. Suppose it to be doubled, and to become 12 feet. This will give $d = \frac{10,34483}{D}$, or 124,138 inches; then the equation $\sqrt{d} = \frac{D}{wb\left(\frac{297}{\sqrt{B}}-0,3\right)} + 0,1$, and

in which we have $\sqrt{B} = 107,8$, $D = 4500$; $\sqrt{d} = 0,1$ $= 11,0417$, will give $h = 13,276$; whereas it should have been 12. This shows that our calculated value of d was too small. Let us therefore increase the depth by 0,9, or make it 12,9, and repeat the calculation. This will give us $\sqrt{d} = 0,1 = 11,3927$, and $h = 12,867$, instead of 13,276. Therefore augmenting our data 0,9 changes our answer 0,409. If we suppose these small changes to retain their proportions, we may conclude that if 12 be augmented by the quantity $x \times 0,9$, the quantity 13,276 will diminish by the quantity $x \times 0,409$. Therefore, that the estimated value of h may agree with the one which results from the calculation, we must have $12 + x \times 0,9 = 13,276 - x \times 0,409$.

This will give $x = \frac{1,276}{1,309} = 0,9748$, and $x \times 0,9 = 0,8773$; and $h = 12,8773$. If we repeat the calculation with this value of h , we shall find no change.

This value of h gives $d = 131,8836$ inches. If we now compute the new velocity by dividing the new discharge 4500 by the new area $150 \times 12,8773$, we shall find it to be 27,95 inches, in place of 20, the former velocity.

We might have made a pretty exact first assumption, by recollecting what was formerly observed, that when the breadth is very great in proportion to the depth, the mean depth differs insensibly from the real depth, or rather follows nearly the same proportions, and that the velocities are proportional to the square roots of the depths. Call the first discharge d , the height h , and velocity v , and let D , H , and V , express these

things in their augmented state. We have $v = \frac{d}{wb}$ and

$V = \frac{D}{wH}$, and $v : V = \frac{d}{h} : \frac{D}{H}$, and $v^2 : V^2 = \frac{d^2}{h^2} :$

$\frac{D^2}{H^2}$. But by this remark $v^2 : V^2 = h : H$. Therefore $h : H = \frac{d^2}{h^2} : \frac{D^2}{H^2}$, and $\frac{hD^2}{H^2} = \frac{Hd^2}{h^2}$, and $h^3 D^2 = H^3 d^2$, and $d^2 : D^2 = h^3 : H^3$ (a useful theorem) and $H^3 = \frac{h^3 D^2}{d^2}$, and $H = \sqrt[3]{\frac{h^3 D^2}{d^2}} = 12,48$.

Or we might have made the same assumption by the remark

Practical
Inferences.

remark also formerly made on this case, that the squares of the discharges are nearly as the cubes of the height, or $1500^2 : 4500^2 = 6^3 : 12,48^3$.

And in making these first guesses we shall do it more exactly, by recollecting that a certain variation of the mean depth d requires a greater variation of the height, and the increment will be to the height nearly as half the height to the width, as may easily be seen. There-

fore, if we add to 12,48 its $\frac{6,24}{150}$ th part, or its 24th part, viz. 0,52, we have 13 for our first assumption, exceeding the truth only an inch and a half. We mention these circumstances, that those who are disposed to apply these doctrines to the solution of practical cases may be at no loss when one occurs of which the regular solution requires an intricate analysis.

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The in-
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It is evident that the inverse of the foregoing problems will show the effects of enlarging the section of a river, that is, will show how much its surface will be sunk by any proposed enlargement of its bed. It is therefore needless to propose such problems in this place. Common sense directs us to make these enlargements in those parts of the river where their effect will be greatest, that is, where it is shallowest when its breadth greatly exceeds its depth, or where it is narrowest (if its depth exceed the breadth, which is a very rare case), or in general, where the slope is the smallest for a short run.

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And direct
us in the
method of
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The same general principles direct us in the method of embankments, for the prevention of floods, by enabling us to ascertain the heights necessary to be given to our banks. This will evidently depend, not only on the additional quantity of water which experience tells us a river brings down during its freshes, but also on the distance at which we place the banks from the natural banks of the river. This is a point where mistaken economy frequently defeats its own purpose. If we raise our embankment at some distance from the natural banks of the river, not only will a smaller height suffice, and consequently a smaller base, which will make a saving in the duplicate proportion of the height; but our works will be so much the more durable nearly, if not exactly, in the same proportion. For by thus enlarging the additional bed which we give to the swollen river, we diminish its velocity almost in the same proportion that we enlarge its channel, and thus diminish its power of ruining our works. Except, therefore, in the case of a river whose freshes are loaded with fine sand to destroy the turf, it is always proper to place the embankment at a considerable distance from the natural banks. Placing them at half the breadth of the stream from its natural banks, will nearly double its channel; and, except in the case now mentioned, the space thus detached from our fields will afford excellent pasture.

The limits of such a work as ours will not permit us to enter into any detail on the method of embankment. It would require a volume to give instructions as to the manner of founding, raising, and securing the dykes which must be raised, and a thousand circumstances which must be attended to. But a few general observations may be made, which naturally occur while we are considering the manner in which a river works in settling or altering its channel.

It must be remarked, in the first place, that the river will rise higher when embanked than it does while it was allowed to spread; and it is by no means easy to conclude to what height it will rise from the greatest height to which it has been observed to rise in its floods. When at liberty to expand over a wide valley; then it could only rise till it overflowed with a thickness or depth of water sufficient to produce a motion backwards into the valley quick enough to take off the water as fast as it was supplied; and we imagine that a foot or two would suffice in most cases. The best way for a prudent engineer will be to observe the utmost rise remembered by the neighbours in some gorge, where the river cannot spread out. Measure the increased section in this place, and at the same time recollect, that the water increases in a much greater proportion than the section; because an increase of the hydraulic mean depth produces an increase of velocity in the duplicate proportion of the depth nearly. But as this augmentation of velocity will obtain also between the embankments, it will be sufficiently exact to suppose that the section must be increased here nearly in the same proportion as at the gorge already mentioned. Neglecting this method of information, and regulating the height of our embankment by the greatest swell that has been observed in the plain, will assuredly make them too low, and render them totally useless.

A line of embankment should always be carried on by a strict concert of the proprietors of both banks through its whole extent. A greedy proprietor, by advancing his own embankment beyond that of his neighbours, not only exposes himself to risk by the working of the waters on the angles which this will produce, but exposes his neighbours also to danger, by narrowing the section, and thereby raising the surface and increasing the velocity, and by turning the stream athwart, and causing it to shoot against the opposite bank. The whole should be as much as possible in a line; and the general effect should be to make the course of the stream straighter than it was before. All bends should be made more gentle, by keeping the embankment further from the river in all convex lines of the natural bank, and bringing it nearer where the bank is concave. This will greatly diminish the action of the waters on the bankment, and insure their duration. The same maxim must be followed in fencing any brook which discharges itself into the river. The bends given at its mouth to the two lines of embankment should be made less acute than those of the natural brook, although, by this means, two points of land are left out. And the opportunity should be embraced of making the direction of this transverse brook more sloping than before, that is, less athwart the direction of the river.

It is of great consequence to cover the outside of the dyke with very compact turf closely united. If it admit water, the interior part of the wall, which is always more porous, becomes drenched in water, and this water acts with its statical pressure, tending to burst the bank on the land-side, and will quickly shift it from its seat. The utmost care should therefore be taken to make it and keep it perfectly tight. It should be a continued fine turf, and every bare spot should be carefully covered with fresh sod; and rat holes must be carefully closed up.

Of straightening or changing the course of rivers.

We have seen, that every bending of a river requires an additional slope in order to continue its train, or enable it to convey the same quantity of water without swelling in its bed. Therefore the effect of taking away any of these bends must be to sink the waters of the river. It is proper, therefore, to have it in our power to estimate these effects. It may be desirable to gain property, by taking away the sweeps of a very winding stream. But this may be prejudicial, by destroying the navigation on such a river. It may also hurt the proprietors below, by increasing the velocity of the stream, which will expose them to the risk of its overflowing, or of its destroying its bed, and taking a new course. Or this increase of velocity may be inconsistent with the regimen of the new channel, or at least require larger dimensions than we should have given it if ignorant of this effect.

Our principles of uniform motion enable us to answer every question of this kind which can occur; and Mr de Buat proposes several problems to this effect. The regular solutions of them are complicated and difficult; and we do not think them necessary in this place, because they may all be solved in a manner not indeed so elegant, because indirect, but abundantly accurate, and easy to any person familiar with those which we have already considered.

We can take the exact level across all these sweeps, and thus obtain the whole slope. We can measure with accuracy the velocity in some part of the channel which is most remote from any bend, and where the channel itself has the greatest regularity of form. This will give us the expence or discharge of the river, and the mean depth connected with it. We can then examine whether this velocity is precisely such as is compatible with stability in the straight course. If it is, it is evident that if we cut off the bends, the greater slope which this will produce will communicate to the waters a velocity incompatible with the regimen suited to this soil, unless we enlarge the width of the stream, that is; unless we make the new channel more capacious than the old one. We must now calculate the dimensions of the channel which, with this increased slope, will conduct the waters with the velocity that is necessary. All this may be done by the foregoing problems; and we may easiest accomplish this by steps. First, suppose the bed the same with the old one, and calculate the velocity for the increased slope by the general formula. Then change one of the dimensions of the channel, so as to produce the velocity we want, which is a very simple process. And in doing this, the object to be kept chiefly in view is not to make the new velocity such as will be incompatible with the stability of the new bed.

Having accomplished this first purpose, we learn (in the very solution) how much shallower this channel with its greater slope will be than the former, while it discharges all the waters. This diminution of depth must increase the slope and the velocity, and must diminish the depth of the river, above the place where the alteration is to be made. How far it produces these effects may be calculated by the general formula. We then see whether the navigation will be hurt, either in the old river up the stream, or in the new channel. It is

plain that all these points cannot be reconciled. We may make the new channel such, that it shall leave a velocity compatible with stability, and that it shall not diminish the depth of the river up the stream. But, having a greater slope, it must have a smaller mean depth, and also a smaller real depth, unless we make it of a very inconvenient form.

The same things viewed in a different light, will show us what depression of waters may be produced by rectifying the course of a river in order to prevent its overflowing. And the process which we would recommend is the same with the foregoing. We apprehend it to be quite needless to measure the angles of rebound, in order to compute the slope which is employed for sending the river through the bend, with a view to supersede this by straightening the river. It is infinitely easier and more exact to measure the levels themselves, and then we know the effect of removing them.

Nor need we follow Mr de Buat in solving problems for diminishing the slope and velocity, and deepening the channel of a river by bending its course. The expence of this would be in every case enormous; and the practices which we are just going to enter upon afford infinitely easier methods of accomplishing all the purposes which are to be gained by these changes.

Of Bars, Weirs, and Jetteys, for raising the Surface of Rivers.

We propose, under the article *WATER-Works*, to consider in sufficient practical detail all that relates to the construction and mechanism of these and other erections in water; and we confine ourselves, in this place, to the mere effect which they will produce on the current of the river.

We gave the name of *weir* or *bar* to a dam erected across a river for the purpose of raising its waters, whether in order to take off a draft for a mill or to deepen the channel. Before we can tell the effect which they will produce, we must have a general rule for ascertaining the relation between the height of the water above the lip of the weir or bar, and the quantity of water which will flow over.

First, then, with respect to a weir, represented in fig. 18. and fig. 18. n° 2. The latter figure more resembles their usual form, consisting of a dam of solid masonry, or built of timber, properly fortified with shoars and banks. On the top is set up a strong plank FR, called the wasteboard, or waster, over which the water flows. This is brought to an accurate level, of the proper height. Such voiders are frequently made in the side of a mill-course, for letting the superfluous water run off. This is properly the *WASTER, VOIDER*: it is also called an *OFFSET*. The same observations will explain all these different pieces of practice. The following questions occur in course.

PROB. I. Given the length of an offset or wasteboard, made in the face of a reservoir of stagnant water, and the depth of its lip under the horizontal surface of the water, to determine the discharge, or the quantity of water which will run over in a second?

Let AB be the horizontal surface of the still water, and F the lip of the wasteboard. Call the depth BF under the surface *h*, and the length of the wasteboard *l*. N. B. The water is supposed to flow over into another basin or channel, so much lower that the surface

HL. of the water is lower, or at least not higher, than F.

If the water could be supported at the height BF, BF might be considered as an orifice in the side of a vessel. In which case, the discharge would be the same as if the whole water were flowing with the velocity acquired from the height $\frac{1}{2}$ BF, or $\frac{1}{2}b$. And if we suppose that there is no contraction at the orifice, the mean velocity would be $\sqrt{2g \frac{1}{2}b} = \sqrt{772 \frac{1}{2}b}$, in English inches per second. The area of this orifice is lb . Therefore the discharge would be $lb \sqrt{772 \frac{1}{2}b}$, all being measured in inches. This is the usual theory; but it is not an exact representation of the manner in which the efflux really happens. The water cannot remain at the height BF; but in drawing towards the wasteboard from all sides, it forms a convex surface AIH, so that the point I, where the vertical drawn from the edge of the wasteboard meets the curve, is considerably lower than B. But as all the mass above F is supposed perfectly fluid, the pressure of the incumbent water is propagated, in the opinion of Mr de Buat, to the filament passing over at F without any diminution. The same may be said of any filament between F and I. Each tends, therefore, to move in the same manner as if it were really impelled through an orifice in its place. Therefore the motions through every part of the line or plane IF are the same as if the water were escaping through an orifice IF, made by a sluice let down on the water, and keeping up the water of the reservoir to the level AB. It is beyond a doubt (says he) that the height IF must depend on the whole height BF, and that there must be a certain determined proportion between them. He does not attempt to determine this proportion theoretically, but says, that his experiments ascertain it with great precision to be the proportion of one to two, or that IF is always one-half of BF. He says, however, that this determination was not by an immediate and direct measurement; he concluded it from the comparison of the quantities of water discharged under different heights of the water in the reservoir.

We cannot help thinking that this reasoning is very defective in several particulars. It cannot be inferred, from the laws of hydrostatical pressure, that the filament at I is pressed forward with all the weight of the column BI. The particle I is really at the surface; and considering it as making part of the surface of a running stream, it is subjected to hardly any pressure, any more than the particles on the surface of a cup of water held in the hand, while it is carried round the axis of the earth and round the sun. Reasoning according to his own principles, and availing himself of his own discovery, he should say, that the particle at I has an accelerating force depending on its slope only; and then he should have endeavoured to ascertain this slope. The motion of the particle at I has no immediate connection with the pressure of the column BI; and if it had, the motion would be extremely different from what it is: for this pressure alone would give it the velocity which Mr Buat assigns it. Now it is already passing through the point I with the velocity which it has acquired in descending along the curve AI; and this is the real state of the case. The particles are passing through with a velocity already acquired by a sloping current; and they are accelerated

by the hydrostatical pressure of the water above them. The internal mechanism of these motions is infinitely more complex than Mr Buat here supposes; and on this supposition, he very nearly abandons the theory which he has so ingeniously established, and adopts the theory of Guglielmini which he had exploded. At the same time, we think that he is not much mistaken when he asserts, that the motions are nearly the same as if a sluice had been let down from the surface to I. For the filament which passes at I has been gliding down a curved surface, and has not been exposed to any friction. It is perhaps the very case of hydraulics, where the obstructions are the smallest; and we should therefore expect that its motion will be the least retarded.

We have therefore no hesitation in saying, that the filament at I is in the very state of motion which the theory would assign to it if it were passing under a sluice, as Mr Buat supposes. And with respect to the inferior filaments, without attempting the very difficult task of investigating their motions, we shall just say, that we do not see any reason for supposing that they will move slower than our author supposes. Therefore, though we reject his theory, we admit his experimental proposition in general; that is, we admit that the *whole* water which passes through the plane IF moves with the velocity (though not in the same direction) with which it would have run through a sluice of the same depth; and we may proceed with his determination of the quantity of water discharged.

If we make BC the axis of a parabola BEGH, the velocities of the filaments passing at I and F will be represented by the ordinates IE and FG, and the discharge by the area IEGF. This allows a very neat solution of the problem. Let the quantity discharged per second be D, and let the whole height BF be b . Let $2G$ be the quantity by which we must divide the square of the mean velocity, in order to have the producing height. This will be less than $2g$, the acceleration of gravity, on account of the convergency at the sides and the tendency to convergence at the lip F. We formerly gave for its measure 726 inches, instead of 772, and said that the inches discharged per second from an orifice of one inch were 26,49, instead of 27,78. Let x be the distance of any filament from the horizontal line AB. An element of the orifice, therefore, (for we may give it this name) is $l \frac{x}{b}$. The velocity of this element is $\sqrt{2Gx}$, or $\sqrt{2G} \times \sqrt{x}$. The discharge from it is $l \sqrt{2G} x^{\frac{1}{2}}$, and the fluent of this, or $D = \int l \sqrt{2G} x^{\frac{1}{2}}$, which is $\frac{2}{3} l \sqrt{2G} x^{\frac{3}{2}} + C$.

To determine the constant quantity C, observe that Mr de Buat found by experiment that BI was in all cases $\frac{1}{2}$ BF. Therefore D must be nothing when $x = \frac{1}{2}b$; consequently $C = -\frac{2}{3} l \sqrt{2G} \left(\frac{b}{2}\right)^{\frac{3}{2}}$, and the completed fluent, will be $D = \frac{2}{3} l \sqrt{2G} \left(x^{\frac{3}{2}} - \left(\frac{b}{2}\right)^{\frac{3}{2}}\right)$.

Now make $x = b$, and we have

$$D = \frac{2}{3} l \sqrt{2G} \left(b^{\frac{3}{2}} - \left(\frac{b}{2}\right)^{\frac{3}{2}}\right) = \frac{2}{3} l \sqrt{2G} \left(1 - \left(\frac{1}{2}\right)^{\frac{3}{2}}\right) b^{\frac{3}{2}}.$$

But $1 - \left(\frac{1}{2}\right)^{\frac{3}{2}} = 0,64645$, and $\frac{2}{3}$ of this is 0,4311: Therefore, finally,

$$D = 0.431 (\sqrt{2G} b^{\frac{3}{2}} \times l).$$

If we now put 26.49 or $26\frac{1}{2}$ for $\sqrt{2G}$, or the velocity with which a head of water of one inch will impel the water over a weir, and multiply this by 0.431, we get the following quantity 11.4172, or, in numbers of easy recollection, $11\frac{1}{2}$, for the cubic inches of water per second, which runs over every inch of a wasteboard when the edge of it is one inch below the surface of the reservoir; and this must be multiplied by $b^{\frac{3}{2}}$, or by the square root of the cube of the head of water. Thus let the edge of the wasteboard be four inches below the surface of the water. The cube of this is 64, of which the square root is eight. Therefore a wasteboard of this depth under the surface, and three feet long, will discharge every second $8 \times 36 \times 11\frac{1}{2}$ cubic inches of water, or $1\frac{8}{15}$ cubic feet, English measure.

The following comparisons will show how much this theory may be depended on. Col. 1. shows the depth of the edge of the board under the surface; 2. shows the discharge by theory; and, 3. the discharge actually observed. The length of the board was $18\frac{1}{2}$ inches. *N. B.* The number in Mr Buat's experiments are here reduced to English measure.

D.	D. Theor.	D. Exp.	E.
1.778	506	524	28.98
3.199	1222	1218	69.83
4.665	2153	2155	123.03
6.753	3750	3771	214.29

The last column is the cubic inches discharged in a second by each inch of the wasteboard. The correspondence is undoubtedly very great. The greatest error is in the first, which may be attributed to a much smaller lateral contraction under so small a head of water.

But it must be remarked, that the calculation proceeds on two suppositions. The height FI is supposed $\frac{1}{2}$ of BI; and $2G$ is supposed 726. It is evident, that by increasing the one and diminishing the other, nearly the same answers may be produced, unless much greater variations of b be examined. Both of these quantities are matters of considerable uncertainty, particularly the first; and it must be farther remarked, that this was not measured, but deduced from the uniformity of the experiments. We presume that Mr Buat tried various values of G , till he found one which gave the ratios of discharge which he observed. We beg leave to observe, that in a set of numerous experiments which we had access to examine, BI was uniformly much less than $\frac{1}{2}$; it was very nearly $\frac{2}{3}$; and the quantity discharged was greater than what would result from Mr Buat's calculation. It was farther observed, that IF depended very much on the form of the wasteboard. When it was a very thin board of considerable depth, IF was very considerably greater than if the board was thick, or narrow, and set on the top of a broad dam-head, as in fig. 18. n° 2.

It may be proper to give the formula a form which will correspond to any ratio which experience may discover between BF and IF. Thus, let BI be $\frac{m}{n}$ BF.

The formula will be $D = \frac{2}{3} l \sqrt{2G} \left(1 - \left(\frac{m}{n}\right)^{\frac{1}{2}}\right) b^{\frac{3}{2}}$

It is hoped that this and some other fundamental facts in practical hydraulics will soon be determined by accurate experiments. The Honourable Board for Fish-

eries and Improvements in Scotland have allotted a sum of money for making the necessary experiments, and the results will be published by their authority. Meantime, this theory of Mr de Buat is of great value to the practical engineer, who at present must content himself with a very vague conjecture, or take the calculation of the erroneous theory of Guglielmini. By that theory, the board of three feet, at the depth of four inches, should discharge nearly $3\frac{1}{10}$ cubic feet per second, which is almost double of what it really delivers.

We presume, therefore, that the following table will be acceptable to practical engineers, who are not familiar with such computations. It contains, in the first column, the depth in English inches from the surface of the stagnant water of a reservoir to the edge of the wasteboard. The second column is the cubic feet of water discharged in a minute by every inch of the wasteboard.

Depth.	Discharge.
1	0.403
2	1.140
3	2.095
4	3.225
5	4.507
6	5.925
7	7.466
8	9.122
9	10.884
10	12.748
11	14.707
12	16.758
13	18.895
14	21.117
15	23.419
16	25.800
17	28.258
18	30.786

When the depth does not exceed four inches, it will not be exact enough to take proportional parts for the fractions of an inch. The following method is exact.

If they be odd quarters of an inch, look in the table for as many inches as the depth contains quarters, and take the eighth part of the answer. Thus, for $3\frac{1}{4}$ inches, take the eighth part of 23.419, which corresponds to 15 inches. This is 2.927.

If the wasteboard is not on the face of a dam, but in a running stream, we must augment the discharge by multiplying the section by the velocity of the stream. But this correction can seldom occur in practice; because, in this case, the discharge is previously known; and it is b that we want; which is the object of the next problem.

We only beg leave to add, that the experiments which we mention as having been already made in this country, give a result somewhat greater than this table, viz. about $\frac{1}{15}$. Therefore, having obtained the answer by this table, add to it its 16th part, and we apprehend that it will be extremely near the truth.

When, on the other hand, we know the discharge over a wasteboard, we can tell the depth of its edge under the surface of the stagnant water of the reservoir,

because we have $b = \left(\frac{D}{11\frac{1}{2}l}\right)^{\frac{2}{3}}$ very nearly.

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We are now in a condition to solve the problem respecting a weir across a river.

PROB. II. The discharge and section of a river being given, it is required to determine how much the waters will be raised by a weir of the whole breadth of the river, discharging the water with a clear fall, that is, the surface of the water in the lower channel being below the edge of the weir?

In this case we have $2G = 746$ nearly, because there will be no contraction at the sides when the weir is the whole breadth of the river. But further, the water is not now stagnant, but moving with the velocity $\frac{D}{S}$, S being the section of the river.

Therefore let a be the height of the weir from the bottom of the river, and b the height of the water above the edge of the weir. We have the velocity

with which the water approaches the weir $= \frac{D}{l(a+b)}$,

l being the length of the weir or breadth of the river. Therefore the height producing the primary mean velocity is $\left(\frac{D}{l\sqrt{2g}(a+b)}\right)^2$. The equation given a

little ago will give $b = \left(\frac{D}{0.431l\sqrt{2G}}\right)^2$, when the water above the weir is stagnant. Therefore, when it is already moving with the velocity $\frac{D}{la+b}$, we shall

have $b = \left(\frac{D}{0.431\sqrt{2G}}\right)^2 - \left(\frac{D}{l\sqrt{2g}(a+b)}\right)^2$. It would be very troublesome to solve this equation regularly, because the unknown quantity b is found in the second term of the answer. But we know that the height producing the velocity above the weir is very small in comparison of b and of a , and, if only estimated roughly, will make a very insensible change in the value of b ; and, by repeating the operation, we can correct this value, and obtain b to any degree of exactness.

To illustrate this by an example. Suppose a river, the section of whose stream is 150 feet, and that it discharges 174 cubic feet of water in a second; how much will the waters of this river be raised by a weir of the same width, and 3 feet high?

Suppose the width to be 50 feet. This will give 3 feet for the depth; and we see that the water will have a clear fall, because the lower stream will be the same as before.

The section being 150 feet, and the discharge 174, the mean velocity is $\frac{174}{150} = 1.16$ feet, = 14 inches nearly, which requires the height of $\frac{1}{4}$ of an inch very nearly. This may be taken for the second term of the

value of b . Therefore $b = \left(\frac{D}{0.431\sqrt{2G}l}\right)^2 - \frac{1}{4}$. Now $\sqrt{2G}$ is, in the present case, = 27.313; l is 600, and D is 174×1728 , = 300672. Therefore $b = 12.192 - 0.25$, = 11.942. Now correct this value of b , by correcting the second term, which is $\frac{1}{4}$ of an inch, in-

stead of $\left(\frac{D}{\sqrt{2g}l(a+b)}\right)^2$, or 0.141. This will give as $b = 12.192 - 0.141$, = 12.051, differing from the first value about $\frac{1}{10}$ of an inch. It is needless to carry

the approximation farther. Thus we see that a weir, which dams up the whole of the former current of three feet deep, will only raise the waters of this river one foot.

The same rule serves for showing how high we ought to raise this weir in order to produce any given rise of the waters, whether for the purposes of navigation, or for taking off a draft to drive mills, or for any other service; for if the breadth of the river remain the same, the water will still flow over the weir with nearly the same depth. A very small and hardly perceptible difference will indeed arise from the diminution of slope occasioned by this rise, and a consequent diminution of the velocity with which the river approaches the weir. But this difference must always be a small fraction of the second term of our answer; which term is itself very small: and even this will be compensated, in some degree, by the freer fall which the water will have over the weir.

If the intended weir is not to have the whole breadth of the river (which is seldom necessary even for the purposes of navigation), the waters will be raised higher by the same height of the wasteboard. The calculation is precisely the same for this case. Only in the second term, which gives the head of water corresponding to the velocity of the river, l must still be taken for the whole breadth of the river, while in the first term l is the length of the wasteboard. Also $\sqrt{2G}$ must be a little less, on account of the contractions at the ends of the weir, unless these be avoided by giving the masonry at the ends of the wasteboard a curved shape on the upper side of the wasteboard. This should not be done when the sole object of the weir is to raise the surface of the waters. Its effect is but trifling at any rate, when the length of the wasteboard is considerable, in proportion to the thickness of the sheet of water flowing over it.

The following comparisons of this rule with experiment will give our readers some notion of its utility.

Discharge of the Weir per Second.	Head producing the velocity at the Weir.	Head producing the Velocity above it	Calculated Height of the River above the Wasteboard	Observed Height
Inches.	Inches.	Inches.	Inches.	Inches.
3888	7.302	0.625	6.677	6.583
2462	5.385	0.350	5.035	4.750
1112	3.171	0.116	3.055	3.166
259	1.201	0.014	1.189	1.250

It was found extremely difficult to measure the exact height of the water in the upper stream above the wasteboard. The curvature AI extended several feet up the stream. Indeed there must be something arbitrary in this measurement, because the surface of the stream is not horizontal. The deviation should be taken, not from a horizontal plane, but from the inclined surface of the river.

It is plain that a river cannot be fitted for continued navigation by weirs. These occasion interruptions; but a few inches may sometimes be added to the waters of a river by a bar, which may still allow a flat-bottomed lighter or a raft to pass over it. This is a very frequent practice in Holland and Flanders; and a very cheap

cheap and certain conveyance of goods is there obtained by means of streams which we would think no better than boundary ditches, and unfit for every purpose of this kind. By means of a bar the water is kept up a very few inches, and the stream has free course to the sea. The shoot over the bar is prevented by means of another bar placed a little way below it, lying flat in the bottom of the ditch, but which may be raised up on hinges. The lighterman makes his boat fast to a stake immediately above the bar, raises the lower bar, brings over his boat, again makes it fast, and, having laid down the other bar again, proceeds on his journey. This contrivance answers the end of a lock at a very trifling expence; and though it does not admit of what we are accustomed to call navigation, it gives a very sure conveyance, which would otherwise be impossible. When the waters can be raised by bars, so that they may be drawn off for machinery or other purposes, they are preferable to weirs, because they do not obstruct floating with rafts, and are not destroyed by the ice.

PROB. III. Given the height of a bar, the depth of water both above and below it, and the width of the river, to determine the discharge?

This is by no means so easily solved as the discharge over a weir, and we cannot do it with the same degree of evidence. We imagine, however, that the following observations will not be very far from a true account of the matter.

We may first suppose a reservoir LFBM (fig. 19.) of stagnant water, and that it has a wasteboard of the height CB. We may then determine, by the foregoing problems, the discharge through the plane EC. With respect to the discharge through the part CA, it should be equal to this product of the part of the section by the velocity corresponding to the fall EC, which is the difference of the heights of water above and below the bar; for, because the difference of Ea and Ca is equal to EC , every particle a of water in the plane CA is pressed in the direction of this stream with the same force, viz. the weight of the column EC. The sum of these discharges should be the whole discharge over the bar; but since the bar is set up across a running river, its discharge must be the same with that of the river. The water of the river, when it comes to the place of the bar, has acquired some velocity by its slope or other causes, and this corresponds to some height FE. This velocity, multiplied by the section of the river, having the height EB, should give a discharge equal to the discharge over the bar.

To avoid this complication of conditions, we may first compute the discharge of the bar in the manner now pointed out, without the consideration of the previous velocity of the stream. This discharge will be a little too small. If we divide it by the section FB, it will give a primary velocity too small, but not far from the truth. Therefore we shall get the height FE, by means of which we shall be able to determine a velocity intermediate between DG and CH, which would correspond to a weir, as also the velocity CH, which corresponds to the part of the section CA, which is wholly under water. Then we correct all these quantities by repeating the operation with them instead of our first assumptions.

Mr Buat found this computation extremely near the

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truth, but in all cases a little greater than observation exhibited.

We may now solve the problem in the most general terms.

PROB. IV. Given the breadth, depth, and the slope of a river, if we confine its passage by a bar or weir of a known height and width, to determine the rise of the waters above the bar.

The slope and dimensions of the channel being given, our formula will give us the velocity and the quantity of water discharged. Then, by the preceding problem, find the height of water above the wasteboard. From the sum of these two heights deduct the ordinary depth of the river. The remainder is the rise of the waters. For example:

Let there be a river whose ordinary depth is 3 feet, and breadth 40, and whose slope is $1\frac{1}{2}$ inches in 100 fathoms, or $\frac{1}{8000}$. Suppose a weir on this river 6 feet high and 18 feet wide.

We must first find the velocity and discharge of the river in its natural state, we have $l = 480$ inches, $b = 36$, $\frac{1}{s} = \frac{1}{8000}$. Our formula of uniform motion gives $V = 23.45$, and $D = 405216$ cubic inches.

The contraction obtains here on the three sides of the orifice. We may therefore take $\sqrt{2g} = 26.1$.—*N. B.* This example is Mr Buat's, and all the measures are French. We have also a (the height of the weir) 72, and $2g = 724$. Therefore the equation $b =$

$$\left(\frac{D}{c, 431 \sqrt{2gl}} \right)^{\frac{2}{3}} - \left(\frac{D}{l \sqrt{2g(a+b)}} \right)^2 \text{ becomes } 30,182.$$

Add this to the height of the weir, and the depth of the river above the sluice is $102,182 = 8$ feet and 6,182 inches. From this take 3 feet, and there remains 5 feet and 6,182 inches for the rise of the waters.

There is, however, an important circumstance in this rise of the waters, which must be distinctly understood before we can say what are the interesting effects of this weir. This swell extends, as we all know, to a considerable distance up the stream, but is less sensible as we go away from the weir. What is the distance to which the swell extends, and what increase does it produce in the depth at different distances from the weir?

If we suppose that the slope and the breadth of the channel remain as before, it is plain, that as we come down the stream from that point where the swell is insensible, the depth of the channel increases all the way to the dam. Therefore, as the same quantity of water passes through every section of the river, the velocity must diminish in the same proportion (very nearly) that the section increases. But this being an open stream, and therefore the velocity being inseparably connected with the slope of the surface, it follows, that the slope of the surface must diminish all the way from that point where the swell of the water is insensible to the dam. The surface, therefore, cannot be a simple inclined plane, but must be concave upwards, as represented in fig. 20. where FKL B represents the channel of a river, and FB the surface of the water running in it. If this be kept up to A by a weir AL, the surface will be a curve FIA, touching the natural surface F at the beginning of the swell, and the line AD which touches it in A will have the slope S corresponding to the velocity which the waters have immediately before going over the weir. We know this slope, because we

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are supposed to know the discharge of the river and its slope and other circumstances before barring it with a dam; and we know the height of the dam H , and therefore the new velocity at A , or immediately above A , and consequently the slope S . Therefore, drawing the horizontal lines DC , AG , it is plain that CB and CA will be the primary slope of the river, and the slope S corresponding to the velocity in the immediate neighbourhood of A , because these verticals have the same horizontal distance DC . We have therefore $CB : CA = S : s$ very nearly, and $S - s : s = CB - CA : CA$, $= AB$ (nearly) : CA . Therefore $CA = \frac{AB \times s}{S - s} =$

$\frac{H \cdot s}{S - s}$. But $DA = CA \times S$, by our definition of slope; therefore $DA = \frac{H \cdot S \cdot s}{S - s}$.

This is all that we can say with precision of this curve. Mr Buat examined what would result from supposing it an arch of a circle. In this case we should have $DA = DF$, and AF very nearly equal to $2 AD$: and as we can thus find AD , we get the whole length FIA of the swell, and also the distances of any part of the curve from the primitive surface FB of the river; for these will be very nearly in the duplicate proportion of their distances from F . Thus ID will be $\frac{1}{4}$ of AB , &c. Therefore we should obtain the depth $I d$ of the stream in that place. Getting the depth of the stream, and knowing the discharge, we get the velocity, and can compare this with the slope of the surface at I . This should be the slope of that part of the arch of the circle. Making this comparison, he found these circumstances to be incompatible. He found that the section and swell at I , corresponding to an arch of a circle, gave a discharge nearly $\frac{1}{4}$ too great (they were as 405216 to 492142). Therefore the curve is such, that AD is greater than DF , and that it is more incurvated at F than at A . He found, that making DA to DF as 10 to 9, and the curve FIA an arch of an ellipse whose longer axis was vertical, would give a very nice correspondence of the sections, velocities, and slopes. The whole extent of the swell therefore can never be double of AD , and must always greatly surpass AD ; and these limits will do very well for every practical question. Therefore making $DF \frac{9}{10}$ of AD , and drawing the chord AD , and making $DI \frac{1}{4}$ of D ; we shall be very near the truth. Then we get the swell with sufficient precision for any point H between F and D , by making $FD^2 : FH^2 = ID : H b$; and if H is between D and A , we get its distance from the tangent DA by a similar process.

It only remains to determine the swell produced in the waters of a river by the erection of a bridge or cleaning sluice which contracts the passage. This requires the solution of

PROB. V. Given the depth, breadth, and slope of a river, to determine the swell occasioned by the piers of a bridge or sides of a cleaning sluice, which contract the passage by a given quantity, for a given length of channel.

This swell depends on two circumstances.

1. The whole river must pass through a narrow space, with a velocity proportionably increased; and this requires a certain head of water above the bridge.
2. The water, in passing the length of the piers with

a velocity greater than that corresponding to the primary slope of the river, will require a greater slope in order to acquire this velocity.

Let V be the velocity of the river before the erection of the bridge, and K the quotient of the width of the river divided by the sum of the widths between the piers. If the length of the piers, or their dimension in the direction of the stream, is not very great, KV will nearly express the velocity of the river under the arches; and if we suppose for a moment the contraction (in the sense hitherto used) to be nothing, the height producing this velocity will be $\frac{K^2 V^2}{2g}$. But the river will

not rise so high, having already a slope and velocity before getting under the arches, and the height corresponding to this velocity is $\frac{V^2}{2g}$; therefore the height

for producing the augmentation of velocity is $\frac{K^2 V^2}{2g}$.

— $\frac{V^2}{2g}$. But if we make allowance for contraction, we

must employ a $2G$ less than $2g$, and we must multiply the height now found by $\frac{2g}{2G}$. It will then become

$\left(\frac{K^2 V^2}{2g} - \frac{V^2}{2g} \right) \frac{2g}{2G} = \frac{V^2}{2G} (K^2 - 1)$. This is that part of the swell which must produce the augmentation of velocity.

With respect to what is necessary for producing the additional slope between the piers, let p be the natural slope of the river (or rather the difference of level in the length of the piers) before the erection of the bridge, and corresponding to the velocity V ; $K^2 p$ will very nearly express the difference of superficial level for the length of the piers, which is necessary for maintaining the velocity KV through the same length. The increase of slope therefore is $K^2 p - p = p(K^2 - 1)$. Therefore the whole swell will be $\left(\frac{V^2}{2G} + p \right) K^2 - 1$.

THESE are the chief questions or problems on this subject which occur in the practice of an engineer; and the solutions which we have given may in every case be depended on as very near the truth, and we are confident that the errors will never amount to one-fifth of the whole quantity. We are equally certain, that of those who call themselves engineers, and who, without hesitation, undertake jobs of enormous expence, not one in ten is able even to guess at the result of such operations, unless the circumstances of the case happen to coincide with those of some other project which he has executed, or has distinctly examined; and very few have the sagacity and penetration necessary for appreciating the effects of the distinguishing circumstances which yet remain. The society established for the encouragement of arts and manufactures could scarcely do a more important service to the public in the line of their institution, than by publishing in their Transactions a description of every work of this kind executed in the kingdom, with an account of its performance. This would be a most valuable collection of experiments and facts. The unlearned practitioner would find among them something which resembles in its chief circumstances almost any project which could occur to him in his

his business, and would tell him what to expect in the case under his management; and the intelligent engineer, assisted by mathematical knowledge, and the habit of classing things together, would frequently be able to frame general rules. To a gentleman qualified as was the Chevalier de Buat, such a collection would be inestimable, and might suggest a theory as far superior to his as he has gone before all other writers.

We shall conclude this article with some observations on the methods which may be taken for rendering small rivers and brooks fit for inland navigation, or at least for floatage. We get much instruction on this subject from what has been said concerning the swell produced in a river by weirs, bars, or any diminution of its former section. Our knowledge of the form which the surface of this swell affects, will furnish rules for spacing these obstructions in such a manner, and at such distances from each other, that the swell produced by one shall extend to the one above it.

If we know the slope, the breadth, and the depth of a river, in the droughts of summer, and have determined on the height of the flood-gates, or keeps, which are to be set up in its bed, it is evident that their stations are not matters of arbitrary choice, if we would derive the greatest possible advantage from them.

Some rivers in Flanders and Italy are made navigable in some sort by simple sluices, which, being shut, form magazines of water, which, being discharged by opening the gates, raises the inferior reach enough to permit the passage of the craft which are kept on it. After this momentary rise the keeps are shut again, the water sinks in the lower reach, and the lighters which were floated through the shallows are now obliged to draw into those parts of the reach where they can lie afloat till the next supply of water from above enables them to proceed. This is a very rude and imperfect method, and unjustifiable at this day, when we know the effect of locks, or at least of double gates. We do not mean to enter on the consideration of these contrivances, and to give the methods of their construction, in this place, but refer our readers to what has been already said on this subject in the articles CANAL, LOCK, NAVIGATION (*Inland*), and to what will be said in the article *Water-Works*. At present we confine ourselves to the single point of husbanding the different falls in the bed of the river, in such a manner that there may be everywhere a sufficient depth of water: and, in what we have to deliver on the subject, we shall take the form of an example to illustrate the application of the foregoing rules.

Suppose then a river 40 feet wide and 3 feet deep in the droughts of summer, with a slope of 1 in 4800. This, by the formula of uniform motion, will have a velocity $V = 23\frac{1}{2}$ inches per second, and its discharge will be 405216 cubic inches, or $234\frac{1}{2}$ feet. It is proposed to give this river a depth not less than five feet in any place, by means of flood-gates of six feet high and 18 feet wide.

We first compute the height at which this body of $234\frac{1}{2}$ cubic feet of water will discharge itself over the flood-gates. This we shall find by Prob. II. to be $30\frac{1}{2}$ inches, to which adding 72, the height of the gate, we have $102\frac{1}{2}$ for the whole height of the water above the

floor of the gate; the primitive depth of the river being 3 feet, the rise or swell 5 feet $6\frac{1}{2}$ inches. In the next place, we find the range or sensible extent of this swell by Prob. I. and the observations which accompany it. This will be found to be nearly 9177 fathoms. Now since the primitive depth of the river is three feet, there is only wanted two feet of addition; and the question is reduced to the finding what point of the curved surface of the swell is two feet above the tangent plane at the head of the swell? or how far this point is from the gate? The whole extent being 9177 fathoms; and the deviations from the tangent plane being nearly in the duplicate ratio of the distances from the point of contact, we may institute this proportion $66\frac{1}{2} : 24 = 9177^2 : 5526^2$. The last term is the distance (from the head of the swell) of that part of the surface which is two feet above the primitive surface of the river. Therefore 9177—5526, or 3651 fathoms, is the distance of this part from the flood-gate; and this is the distance at which the gates should be placed from each other. No inconvenience would arise from having them nearer, if the banks be high enough to contain the waters; but if they are farther distant, the required depth of water cannot be had without increasing the height of the gates; but if reasons of convenience should induce us to place them nearer, the same depth may be secured by lower gates, and no additional height will be required for the banks. This is generally a matter of moment, because the raising the water brings along with it the chance of flooding the adjoining fields. Knowing the place where the swell ceases to be sensible, we can keep the top of the intermediate flood-gate at the precise height of the curved surface of the swell by means of the proportionality of the deviations from the tangent to the distances from the point of contact.

But this rule will not do for a gate which is at a greater distance from the one above it than the 3651 fathoms already mentioned. We know that a higher gate is required, producing a more extensive swell; and the one swell does not coincide with the other, although they may both begin from the same point A (fig. 21.) Nor will the curves even be similar, unless the thickness of the sheet of water flowing over the gate be increased in the same ratio. But this is not the case; because the produce of the river, and therefore the thickness of the sheet of water, is constant.

But we may suppose them similar without erring more than two or three decimals of an inch; and then we shall have $AF : AL :: fF : DL$; from which, if we take the thickness of the sheet of water already calculated for the other gates, there will remain the height of the gate BL.

By following these methods, instead of proceeding by random guesses, we shall procure the greatest depth of water at the smallest expence possible.

But there is a circumstance which must be attended to, and which, if neglected, may in a short time render all our works useless. These gates must frequently be open in the time of freshes; and as this channel then has its natural slope increased in every reach by the great contraction of the section in the gates, and also rolls along a greater body of water, the action of the stream on its bed must be increased by the augmentation of velocity which these circumstances will produce:

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and although we may say that the general slope is necessarily secured by the cills of the flood-gates, which are paved with stone or covered with planks, yet this will not hinder this increased current from digging up the bottom in the intervals, undermining the banks, and lodging the mud and earth thus carried off in places where the current meets with any check. All these consequences will assuredly follow if the increased velocity is greater than what corresponds to the regimen relative to the soil in which the river holds on its course.

In order therefore to procure durability to works of this kind, which are generally of enormous expence, the local circumstances must be most scrupulously studied. It is not the ordinary hurried survey of an engineer that will free us from the risk of our navigation becoming very troublesome by the rise of the waters being diminished from their former quantity, and banks formed at a small distance below every sluice. We must attentively study the nature of the soil, and discover experimentally the velocity which is not inconsistent with the permanency of the channel. If this be not a great deal less than that of the river when accelerated by freshes, the regimen may be preserved after the establishment of the gate, and no great changes in the channel will be necessary: but if, on the other hand, the natural velocity of the river during its freshes greatly exceeds what is consistent with stability, we must enlarge the width of the channel, that we may diminish the hydraulic mean depth, and along with this the velocity. Therefore, knowing the quantity discharged during the freshes, divide it by the velocity of regimen, or rather by a velocity somewhat greater (for a reason which will appear by and by), the quotient will be the area of a new section. Then taking the natural slope of the river for the slope which it will preserve in this enlarged channel, and after the cills of the flood-gates have been fixed, we must calculate the hydraulic mean depth, and then the other dimensions of the channel. And, lastly, from the known dimensions of the channel and the discharge (which we must now compute), we proceed to calculate the height and the distances of the flood-gates, adjusted to their widths, which must be regulated by the room which may be thought proper for the free passage of the lighters which are to ply on the river. An example will illustrate the whole of this process.

Suppose then a small river having a slope of 2 inches in 100 fathoms or 7000, which is a very usual declivity of such small streams, and whose depth in summer is 2 feet, but subject to floods which raise it to nine feet. Let its breadth at the bottom be 18 feet, and the base of its slanting sides $\frac{1}{2}$ of their height. All of these dimensions are very conformable to the ordinary course of things. It is proposed to make this river navigable in all seasons by means of keeps and gates placed at proper distances; and we want to know the dimensions of a channel which will be permanent, in a soil which begins to yield to a velocity of 80 inches per second, but will be safe under a velocity of 24.

The primitive channel having the properties of a rectangular channel, its breadth during the freshes must be $B = 30$ feet, or 360 inches, and its depth h 9 feet or 108 inches; therefore its hydraulic mean depth

$$d = \frac{Bh}{B + 2h} = 61,88 \text{ inches. Its real velocity there-}$$

fore, during the freshes, will be 38,9447 inches, and its discharge 1514169 cubic inches, or 876 $\frac{1}{2}$ cubic feet per second. We see therefore that the natural channel will not be permanent, and will be very quickly destroyed or changed by this great velocity. We have two methods for procuring stability, viz. diminishing the slope, or widening the bed. The first method will require the course to be lengthened in the proportion of 24² to 3988², or nearly of 36 to 100. The expence of this would be enormous. The second method will require the hydraulic mean depth to be increased nearly in the same proportion (because the velocities are nearly as $\frac{\sqrt{d}}{\sqrt{s}}$). This will evidently be much less cost-

ly, and, even to procure convenient room for the navigation, must be preferred.

We must now observe, that the great velocity, of which we are afraid, obtains only during the winter floods. If therefore we reduce this to 24 inches, it must happen that the autumnal freshes, loaded with sand and mud, will certainly deposit a part of it, and choke up our channel below the flood-gates. We must therefore select a mean velocity somewhat exceeding the regimen, that it may carry off these depositions. We shall take 27 inches, which will produce this effect on the loose mud without endangering our channel in any remarkable degree.

Therefore we have, by the theorem for uniform motion, $V = 27 = \frac{297(\sqrt{d} - 0,1)}{\sqrt{s} - 1,6\sqrt{s} + 1,6} - 0,3(\sqrt{s} - 0,1)$.

Calculating the divisor of this formula, we find it = 55,884. Hence $\sqrt{d} - 0,1 = \frac{27 \text{ inch.}}{55,884} = 0,3$

5,3843, and therefore $d = 30,11$. Having thus determined the hydraulic mean depth, we find the area S of the section by dividing the discharge 1514169 by the velocity 27. This gives us 56080,368. Then we get the breadth B by the formula formerly given,

$$B = \sqrt{\left(\frac{S}{2d}\right)^2 - 2S} + \frac{S}{2d} = 1802,296 \text{ inches, or } 150,19 \text{ feet, and the depth } h = 31,115 \text{ inches.}$$

With these dimensions of the section we are certain that the channel will be permanent; and the cills of the flood-gates being all fixed agreeable to the primitive slope, we need not fear that it will be changed in the intervals by the action of the current. The gates being all open during the freshes, the bottom will be cleared of all deposited mud.

We must now station the flood-gates along the new channel, at such distances that we may have the depth of water which is proper for the lighters that are to be employed in the navigation. Suppose this to be four feet. We must first of all learn how high the water will be kept in this new channel during the summer droughts. There remained in the primitive channel only 2 feet, and the section in this case had 20 feet 8 inches mean width; and the discharge corresponding to this section and slope of $\frac{1}{7000}$ is, by the theorem of uniform motion, 130,849 cubic inches per second. To find

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gates, &c.

To find

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find the depth of water in the new channel corresponding to this discharge, and the same slope, we must take the method of approximation formerly exemplified, remembering that the discharge D is 130849, and the breadth B is 1760.8 at the bottom (the slant sides being $\frac{4}{3}$). These data will produce a depth of water $= 6\frac{1}{2}$ inches. To obtain four feet therefore behind any of the flood-gates, we must have a swell of $41\frac{1}{2}$ inches produced by the gate below.

We must now determine the width of passage which must be given at the gates. This will regulate the thickness of the sheet of water which flows over them when shut; and this, with the height of the gate, fixes the swell at the gate. The extent of this swell, and the elevation of every point of its curved surface above the new surface of the river, requires a combination of the height of swell at the flood-gate, with the primitive slope and the new velocity. These being computed, the stations of the gates may be assigned, which will secure four feet of water behind each in summer. We need not give these computations, having already exemplified them all with relation to another river.

This example not only illustrates the method of proceeding, so as to be ensured of success, but also gives us a precise instance of what must be done in a case which cannot but frequently occur. We see what a prodigious excavation is necessary, in order to obtain permanency. We have been obliged to enlarge the primitive bed to about thrice its former size, so that the excavation is at least two-thirds of what the other method required. The expence, however, will still be vastly inferior to the other, both from the nature of the work and the quantity of ground occupied. At all events, the expence is enormous, and what could never be repaid by the navigation, except in a very rich and populous country.

There is another circumstance to be attended to.—The navigation of this river by sluices must be very defultory, unless they are extremely numerous, and of small heights. The natural surface of the swell being concave upwards, the additions made by its different parts to the primitive height of the river decrease rapidly as they approach to the place A (fig. 20), where the swell terminates; and three gates, each of which raises the water one foot when placed at the proper distance from each other, will raise the water much more than two gates at twice this distance, each raising the water two feet. Moreover, when the elevation produced by a flood-gate is considerable, exceeding a very few inches, the fall and current produced by the opening of the gate is such, that no boat can possibly pass up the river, and it runs imminent risk of being overfet and sunk, in the attempt to go down the stream. This renders the navigation defultory. A number of lighters collect themselves at the gates, and wait their opening. They pass through as soon as the current becomes moderate. This would not, perhaps, be very hurtful in a regulated navigation, if they could then proceed on their voyage. But the boats bound up the river must stay on the upper side of the gate which they have just now passed, because the channel is now too shallow for them to proceed. Those bound down the river can only go to the next gate, unless it has been opened at a time nicely adjusted to the opening of the one above it. The passage

downwards may, in many cases, be continued, by very intelligent and attentive lockmen, but the passage up must be exceedingly tedious. Nay, we may say, that while the passage downwards is continuous, it is but in a very few cases that the passage upward is practicable. If we add to these inconveniences the great danger of passage during the freshes, while all the gates are open, and the immense and unavoidable accumulations of ice, on occasion even of slight frosts, we may see that this method of procuring an inland navigation is amazingly expensive, defultory, tedious, and hazardous. It did not therefore merit, on its own account, the attention we have bestowed on it. But the discussion was absolutely necessary, in order to show what must be done in order to obtain effect and permanency, and thus to prevent us from engaging in a project which, to a person not duly and confidently informed, is so feasible and promising. Many professional engineers are ready, and with honest intentions, to undertake such tasks; and by avoiding this immense expence, and contenting themselves with a much narrower channel, they succeed, (witness the old navigation of the river Mersey). But the work has no duration; and, not having been found very serviceable, its cessation is not matter of much regret. The work is not much spoken of during its continuance. It is soon forgotten, as well as its failure, and engineers are found ready to engage for such another.

It was not a very refined thought to change this imperfect mode for another free from most of its inconveniences. A boat was brought up the river, through one of these gates, only by raising the waters of the inferior reach, and depressing those of the upper: and it could not escape observation, that when the gates were far asunder, a vast body of water must be discharged before this could be done, and that it would be a great improvement to double each gate, with a very small distance between. Thus a very small quantity of water would fill the interval to the desired height, and allow the boat to come through; and this thought was the more obvious, from a similar practice having preceded it, viz. that of navigating a small river by means of double bars, the lowest of which lay flat in the bottom of the river, but could be raised up on hinges. We have mentioned this already; and it appears to have been an old practice, being mentioned by Stevinus in his valuable work on sluices, published about the beginning of the last century; yet no trace of this method is to be found of much older dates. It occurred, however, accidentally, pretty often in the flat countries of Holland and Flanders, which being the seat of frequent wars, almost every town and village was fortified with wet ditches, connected with the adjoining rivers. Stevinus mentions particularly the works of Condé, as having been long employed, with great ingenuity, for rendering navigable a very long stretch of the Scheldt. The boats were received into the lower part of the fosse, which was separated from the rest by a stone batardeau, serving to keep up the waters in the rest of the fosse about eight feet. In this was a sluice and another dam, by which the boats could be taken into the upper fosse, which communicated with a remote part of the Scheldt by a long canal. This appears to be one of the earliest locks.

In the first attempt to introduce this improvement in the

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the navigation of rivers already kept up by weirs, which gave a partial and interrupted navigation, it was usual to avoid the great expence of the second dam and gate, by making the lock altogether detached from the river, within land, and having its basin parallel to the river, and communicating by one end with the river above the weir, and by the other end with the river below the weir, and having a flood-gate at each end.— This was a most ingenious thought; and it was a prodigious improvement, free from all the inconveniences of currents, ice, &c. &c. It was called a *Schluffel*, or lock, with considerable propriety; and this was the origin of the word *sluice*, and of our application of its translation *lock*. This practice being once introduced, it was not long before engineers found that a complete separation of the navigation from the bed of the river was not only the most perfect method for obtaining a sure, easy, and uninterrupted navigation, but that it was in general the most economical in its first construction, and subject to no risk of deterioration by the action of the current, which was here entirely removed. Locked canals, therefore, have almost entirely supplanted all attempts to improve the natural beds of rivers; and this is hardly ever attempted except in the flat countries, where they can hardly be said to differ from horizontal canals. We therefore close with these observations this article, and reserve what is yet to be said on the construction of canals and locks for the article *Water-Works*.

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Observations
to the
reader.

WE beg leave, however, to detain the reader for a few moments. He cannot but have observed our anxiety to render this dissertation worthy of his notice, by making it practically useful. We have on every occasion appealed, from all theoretical deductions, however specious and well supported, to fact and observation of those spontaneous phenomena of nature which are continually passing in review before us in the motion of running waters. Resting in this manner our whole doctrines on experiment, on the observation of what really happens, and what happens in a way which we cannot or do not fully explain, these spontaneous operations of nature came insensibly to acquire a particular value in our imagination. It has also happened in the course of our reflections on these subjects, that these phenomena have frequently presented themselves to our view in groups, not less remarkable for the extent and the importance of their consequences than for the simplicity, and frequently the seeming insignificance, nay frivolity, of the means employed. Our fancy has therefore been sometimes warmed with the view of a something; an

Ens agitans molem, et magno se corpore miscens.

This has sometimes made us express ourselves in a way that is susceptible of misinterpretation, and may even lead into a mistake of our meaning.

We therefore find ourselves obliged to declare, that by the term *NATURE*, which we have so frequently used *con amore*, we do not mean that indescribable idol which the self-conceit and vanity of our neighbours in France have set up of late, and ostentatiously stand on tiptoe to worship. This *ens rationis*, this creature of the imagination, has long been the object of cool contemplation in the closet of the philosopher, and has shared his attention with many other play-things of his ever-working fancy. But she has now become the ob-

ject of a sincere and fond idolatry, being held forth by her zealous high-priests to the refined vanity of man as a sort of mirror, in which he may behold his own cherished features, and admire a beauty of his own composition, painted with the most delicate glow of humanity, and decked out with every ornament with which the courtly fancies of a Voltaire, a Diderot, a Mirabeau, could contrive, to smooth over or to hide all traces of created imperfection. We leave this idol to the worship of her intoxicated and unfortunate votaries. The solemn farce in the church of Notre Dame at Paris was an adoration every way worthy of the Divinity; and our horror in reading the description of the ceremonial was not without some allay of pleasure, when we saw among her most active priests an artist, whom we had seen a few years before the *machiniste de Popera* at St Petersburg, and grand-master of the lodge *des Mouffes*. We hope to be forgiven the pun, when we say that the ancient fabric which was that day profaned by the *abomination of desolation*, was then in reality the *temple de Notre Dame*. Mr Brignonzi was, by his profession, a fit successor in the priesthood to those *sages de la France* (such was the appellation that they gave each other), whom we have just now named; and his *Tour de Theatre*, for which we have frequently admired his talents, were a very proper accompaniment to the finesse and ruse of these *soi-disant* philosophers, who, under the mask of the most refined humanity, habitually practised arts of dishonesty which would have ruined the character of the meanest pedlar. No one will think that we express ourselves too strongly who reflects on the many infamous tricks played by Voltaire to his booksellers. No one will think the charge too harsh, when he learns that Diderot, after having pretended to the possession of an immense library, and sold it to the empress of Russia for an enormous sum, had to ransack the warehouses of the booksellers of Paris and throughout all Germany, in order to fill his shelves. As for Mirabeau, he surpasses eulogy.

Most assiduous were those apostles in spreading this fanaticism, of which they enjoyed the courtly profits: and we imagine that the employment was as agreeable as it was lucrative; for we cannot suppose that Le Kain had more enjoyment, when fascinating his Parisian audience in the character of Voltaire's Mahomet, than its author felt in the side-box, when grinning to himself, and conscious what a fard and envious wretch he was, he found himself crowned by the first actresses, and worshipped by the audience as the apostle of philanthropy and universal benevolence.

Such was the worship, such were the priests, of this Gallic idol; and, like their predecessors the Druids, they have made human sacrifices a customary oblation at the shrine. We wonder at these things, and are surprised that any thing which can even be nicknamed *philosophy* can produce such effects. But the task of this apostleship was as easy as it was agreeable. It was not the work of a day; it was the completion of a studied corruption of principles, which is now above a century old. We may say that it began under the clever but infamous Dubois; who from being the valet de chambre of an infirm bishop, became cardinal, and sovereign of the Gallic church, and almost of the state. When objected to by the bigotted Louis XIV. (on a presentation for preferment) as a Jansenist, "*Oh qui non,*" said the duke of Orleans, "*Oh, Sire, qui non, il n'est qu'athée.*"

qu'athée." He was at the utmost pains to bring into the court every man of eminent talents in gay literature, and of licentious principles in religion and morals, whom he employed in corrupting the minds of the young courtiers, and giving them favourable impressions of the indulgence which they might expect from him when he should have the sole direction of affairs. This system was most assiduously pursued during that most licentious and dissolute administration of the regent Orleans, who was himself a specimen of elegant sensuality not to be matched in the annals of the world. Long before the present day, all thinking men in France saw the mummery of the church, and groaned under its oppression; and having no other notions of religion but what they were accustomed to from their cradle, no wonder that they discarded the principle along with those detestable accessories. The nation, therefore, being greedy of flattery, buoyed up by a self-conceit, in which even the ancient Greeks have not surpassed them, and having been thus studiously corrupted, and long immersed in a luxurious and refined sensuality, of which we in this nation have not yet acquired an adequate idea, was fully prepared for feeling all the effects of this fanaticism of NATURALISM.

But this idolatry we abhor. It shocks our reason; and, although it may at first seem to flatter our thoughtless vanity, it really debases our nature, by taking from us our intellectual kindred to the mind of perfect wisdom. Who would not feel pleasure in being the relation of a Bacon, of a Newton, or would thank the man who detected the false pedigree? It puts an end to our fond hopes, that the day will come when we shall surpass in understanding, in worth, and in felicity, the wisest, the best, and the most fortunate of our species.

We cannot but lament the appearances, however faint, of this fanaticism among ourselves. We cannot but observe, that some of the hired directors of public opinion in matters of taste and science have of late showed a wonderful tenderness for the bold and licentious opinions in religion, morals, and politics, which are daily pouring in upon us from the presses of Paris. Perhaps they may be incited to this conduct by the success of their brother journalists in that profligate metropolis; and may hope to be one day, like them, the directors of the public councils and the sovereigns of the nation. We trust, however, that the better part of the reflecting natives of Britain will not allow themselves to be sneered out of their highest boast and their sweetest comforts; namely, that they are not the chance fragments of a fatal chaos, but the beautiful productions

of a wonderful Artist, and the darling objects of his care: and we assure ourselves that ten thousands of our countrymen are ready to rally under the banners of true religion and sound philosophy, and to follow the steps of a Clarke, a Butler, a Newton, and a Boyle, who so eminently distinguished themselves in the cause of Nature's God.

By NATURE, then, we mean that admirable system of general laws, by which the adored Author and Governor of the universe has thought fit to connect the various parts of this wonderful and goodly frame of things, and to regulate all their operations.

We are not afraid of continually appealing to the laws of nature; and as we have already observed in the article PHILOSOPHY, we consider these general laws as the most magnificent displays of Infinite Wisdom, and the contemplation of them as the most cheering employment of our understandings.

*Ignescit illis vigor et celestis origo
Seminibus.*

At the same time we despise the cold-hearted philosopher who stops short here, and is satisfied (perhaps inwardly pleased) that he has completely accounted for every thing by the laws of unchanging nature; and we suspect that this philosopher would analyse with the same frigid ingenuity, and explain by irresistible *raison*, the tender attachment of her whose breast he sucked, and who by many anxious and sleepless nights preserved alive the pining infant. But let us rather listen to the words of him who was the most sagacious observer and the most faithful interpreter of nature's laws, our illustrious countryman Sir Isaac Newton. He says,

"Elegantissima hæc rerum compages non nisi consilio et dominio entis sapientissimi et potentissimi oriri potuit. Omnia, simili constructa consilio, suberunt unius dominio. Hic omnia regit, non ut *anima mundi*, sed ut universorum dominus. Propter dominium suum dominus deus, *παντοκράτωρ* nuncupatur. Deus ad servientes respicit, et *deitas* est dominatio dei, non in corpus proprium, uti sentiunt quibus deus est natura seu anima mundi, sed in servos. Deus summus est ens eternum, infinitum, absolute perfectum. Ens utcumque perfectum, at sine dominio, non est dominus deus.

"Hunc cognoscimus, solummodo per proprietates ejus et attributa. Attribuuntur ut ex phenomenon dignoscuntur. Phenomena sunt sapientissimæ et optimæ rerum structuræ, atque causæ finales.—Hunc admiramur ob perfectiones; hunc veneramur et colimus ob dominium" (B).

Ri-

(B) Our readers will probably be pleased with the following list of authors who have treated professedly of the motions of rivers: Guglielmini *De Fluvii et Castellis Aquarum—Danubius Illustratus*; Grandi *De Castellis*; Zandrini *De Motu Aquarum*; Frisius *De Fluvii*; Lecchi *Idrostatica i Idraulica*; Michelotti *Sperienze Idrauliche*; Belidor's *Architecture Hydraulique*; Bossut *Hydrodynamique*; Buat *Hydraulique*; Silberchlag *Theorie des Fleuves*; *Lettres de M. L'Epinafle au P. Frisi touchant sa Theorie des Fleuves*; *Tableau des principales Rivières du Monde*, par Genetté; *Stevens sur les Ecluses*; *Traité des Ecluses*, par Boulard, qui a remporté le *Prize de l'Acad. de Lyons*; Bleiswyck *Dissertatio de Aggeribus*; Bossut et Viallet *sur la Construction des Dignes*; *Stevens Hydrostatica*; Tielman van der Horst *Theatrum Machinarum Universale*; *De la Lande sur les Canaux de Navigation*; *Racolta di Autori chi Trattano del Moto dell' Acque*, 3 tom. 4to, Firenze 1723.—This most valuable collection contains the writings of Archimedes, Albizi, Galileo, Castelli, Michelini, Borelli, Montanari, Viviani, Cassini, Guglielmini, Grandi, Manfredi, Picard, and Narduci; and an account of the numberless works which have been carried on in the embankment of the Po.

RIVER-Water. This is generally much softer and better accommodated to economical purposes than spring-water. For though rivers proceed originally from springs, yet, by their rapid motion, and by being exposed during a long course to the influence of the sun and air, the earthy and metallic salts which they contain are decomposed, the acid flies off, and the terrestrial parts precipitate to the bottom. Rivers are also rendered softer by the vast quantity of rain-water, which, passing along the surface of the earth, is conveyed into their channels. But all rivers carry with them a great deal of mud and other impurities; and, when they flow near large and populous towns, they become impregnated with a number of heterogeneous substances, in which state the water is certainly unfit for the purposes of life; yet, by remaining for some time at rest, all the feculencies subside, and the water becomes sufficiently pure and potable.

RIVERS (Earl). See WODEVILLE.

RIVINIA, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants.—The perianth is four-leaved, coloured, and permanent; the leaflet oblong-egged and obtuse; there is no corolla, unless the calyx be considered as such. There are four or eight filaments, shorter than the calyx, approaching by pairs, permanent; the anthers are small. The germ is large and roundish; the style very short; the stigma simple and obtuse. The berry is globular, sitting on the green reflected calyx, one-celled with an incurved point. There is one seed, lensform and rugged. This plant is called *Solonoides* by Tournefort, and *Piercea* by Miller. It grows naturally in most of the islands of the West Indies. The juice of the berries of the plant will stain paper and linen of a bright red colour, and many experiments made with it to colour flowers have succeeded extremely well in the following manner: the juice of the berries was pressed out, and mixed with common water, putting it into a phial, shaking it well together for some time, till the water was thoroughly tinged; then the flowers, which were white and just fully blown, were cut off, and their stalks placed into the phial; and in one night the flowers have been finely variegated with red; the flowers on which the experiments were made were the tuberose, and the double white narcissus.

RIVULET, a diminutive of river. See RIVER.

ROACH, in ichthyology. See CYPRINUS.

ROAD, an open way, or public passage, forming a communication between one place and another.

Of all the people in the world the Romans took the most pains in forming roads; and the labour and expences they were at in rendering them spacious, firm, straight, and smooth, are incredible. They usually strengthened the ground by ramming it, laying it with flints, pebbles, or sands, and sometimes with a lining of masonry, rubbish, bricks, &c. bound together with mortar. In some places in the Liois, F. Menestrier observes, that he has found huge clusters of flints cemented with lime, reaching 10 or 12 feet deep, and making a mass as hard and compact as marble; and which, after resisting the injuries of time for 1600 years, is still scarce penetrable by all the force of hammers, mattocks, &c. and yet the flints it consists of are not bigger than eggs. The most noble of the Roman roads was the *Via Appia*, which was carried to such a

vast length, that Procopius reckons it five days journey to the end of it, and Leipsius computes it at 350 miles: it is 12 feet broad, and made of square free-stone generally a foot and a half on each side; and though this has lasted for above 1800 years, yet in many places it is for several miles together as entire as when it was first made.

The ancient roads are distinguished into military roads, double roads, subterraneous roads, &c. The military roads were grand roads, formed by the Romans for marching their armies into the provinces of the empire; the principal of these Roman roads in England are Watling-street, Ikenild-street, Foss-way, and Erminage-street. Double roads among the Romans, were roads for carriages, with two pavements, the one for those going one way, and the other for those returning the other: these were separated from each other by a causeway raised in the middle, paved with bricks, for the convenience of foot passengers; with borders and mounting stones from space to space, and military columns to mark the distance. Subterraneous roads are those dug through a rock, and left vaulted; as that of Puzzuoli near Naples, which is near half a league long, and is 15 feet broad and as many high.

The first law enacted respecting highways and roads in England was in the year 1285; when the lords of the soil were enjoined to enlarge those ways where bushes, woods, or ditches be, in order to prevent robberies. The next law was made by Edward III. in the year 1346; when a commission was granted by the king to lay a toll on all sorts of carriages passing from the hospital of St Giles in the fields to the bar of the Old Temple, and also through another highway called *Portpool* (now Gray's Inn Lane) joined to the before-named highway; which roads were become almost impassable. Little further relating to this subject occurs, till the reign of Henry VIII. when the parishes were entrusted with the care of the roads, and surveyors were annually elected to take care of them. But the increase of luxury and commerce introduced such a number of heavy carriages for the conveyance of goods, and lighter ones for the convenience and ease of travelling, that parish aid was found insufficient to keep the best frequented roads in repair. This introduced toll-gates or turnpikes; that something might be paid towards their support by every individual who enjoyed the benefit of these improvements, by passing over the roads.

Speaking of roads, the Abbé Raynal justly remarks. "Let us travel over all the countries of the earth, and wherever we shall find no facility of trading from a city to a town, and from a village to a hamlet, we may pronounce the people to be barbarians; and we shall only be deceived respecting the degree of barbarism."

ROAD, in navigation, a bay, or place of anchorage, at some distance from the shore, whither ships or vessels occasionally repair to receive intelligence, orders, or necessary supplies; or to wait for a fair wind, &c. The excellence of a road consists chiefly in its being protected from the reigning winds and the swell of the sea; in having a good anchoring-ground, and being at a competent distance from the shore. Those which are not sufficiently inclosed are termed *open roads*.

ROAN, in the manege. A *roan* horse is one of a bay,

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be-y.

bay, forrel, or black colour, with grey or white spots interspersed very thick. When this party-coloured coat is accompanied with a black head and black extremities, he is called a *roan horse with a black-a-moor's head*: and if the same mixture is predominant upon a deep forrel, he is called *claret-roan*.

ROANOAK, an island of North America, near the coast of North Carolina. Here the English first attempted to settle in 1585, but were obliged to leave it for want of provisions. E. Long. 75. o. N. Lat. 35. 40.

ROANOAK, a river of North America, which rises in Virginia, runs through Carolina, and at length falls into the sea, where it forms a long narrow bay called *Albemarle sound*.

ROASTING, in metallurgic operations, signifies the dissipation of the volatile parts of an ore by heat. See **METALLURGY**, *passim*.

ROB, in pharmacy, the juices of fruits purified and inspissated till it is of the consistence of honey.

ROBBERY, the *rapina* of the civilians, is the felonious and forcible taking, from the person of another, of goods or money to any value, by violence or putting him in fear. 1. There must be a taking, otherwise it is no robbery. A mere attempt to rob was indeed held to be felony so late as Henry IVth's time; but afterwards it was taken to be only a misdemeanour, and punishable with fine and imprisonment; till the statute 7 Geo. II. c. 21. which makes it a felony (transportable for seven years) unlawfully and maliciously to assault another, with any offensive weapon or instrument;—or by menaces, or by other forcible or violent manner, to demand any money or goods;—with a felonious intent to rob. If the thief, having once taken a purse, returns it, still it is a robbery: and so it is whether the taking be strictly from the person of another, or in his presence only; as where a robber by menaces and violence puts a man in fear, and drives away his sheep or his cattle before his face. 2. It is immaterial of what value the thing taken is: a penny, as well as a pound thus forcibly extorted, makes a robbery. 3. Lastly, the taking must be by force, or a previous putting in fear; which makes the violation of the person more atrocious than privately stealing. For, according to the maxim of the civil law, "*qui vi rapuit, fur improbius esse videtur.*" This previous violence, or putting in fear, is the criterion that distinguishes robbery from other larcenies. For if one privately steals sixpence from the person of another, and afterwards keeps it by putting him in fear, this is no robbery, for the fear is subsequent: neither is it capital as privately stealing, being under the value of twelve-pence. Not that it is indeed necessary, though usual, to lay in the indictment that the robbery was committed by *putting in fear*: it is sufficient, if laid to be done by *violence*. And when it is laid to be done by putting in fear, this does not imply any great degree of terror or affright in the party robbed: it is enough that so much force or threatening, by word or gesture, be used, as might create an apprehension of danger, or induce a man to part with his property without or against his consent. Thus, if a man be knocked down without previous warning, and stripped of his property while senseless, though strictly he cannot be said to be *put in fear*, yet this is undoubtedly a robbery. Or, if a per-

son with a sword drawn begs an alms, and I give it him through mistrust and apprehension of violence, this is a felonious robbery. So if, under a pretence of sale, a man forcibly extorts money from another, neither shall this subterfuge avail him. But it is doubted, whether the forcing a higler, or other chapman, to sell his wares, and giving him the full value of them, amounts to so heinous a crime as robbery.

This species of **LARCENY** is debarred of the benefit of clergy by statute 23 Hen. VIII. c. 1. and other subsequent statutes; not indeed in general, but only when committed in a dwelling-house, or in or near the king's highway. A robbery therefore in a distant field, or footpath, was not punished with death; but was open to the benefit of clergy, till the statute 3 & 4 W. and M. c. 9. which takes away clergy from both principals and accessories before the fact, in robbery, wheresoever committed. See **LAW**, N° clxxxvi. 30.

ROBERT BRUCE, king of Scotland, in 1306; a renowned general, and the deliverer of his country from a state of vassalage to the English. See **SCOTLAND**.

ROBERT, king of France, surnamed the Wise and the Pious, came to the crown in 996, after the death of Hugh Capet his father. He was crowned at Orleans, the place of his nativity, and afterwards at Rheims, after the imprisonment of Charles of Lorraine. He married Bertha his cousin, daughter of Conrad king of Burgundy; but the marriage was declared null by Gregory V.; and the king, if we can give credit to cardinal Peter Damien, was excommunicated. This anathema made such a noise in France, that all the king's courtisans, and even his very domestics, went away from him. Only two continued with him; who were so deeply impressed with a sense of horror at whatever the king touched, that they purified it with fire: this scruple they carried so far, as to the very plates on which he was served with his meat, and the vessels out of which he drank. The same cardinal reports, that as a punishment for this pretended incest, the queen was delivered of a monster, which had the head and neck of a duck. He adds, that Robert was so struck with astonishment at this species of prodigy, that he lived apart from the queen. He contracted a second marriage with Constance, daughter of William count of Arles and Provence; but the arrogant disposition of this princess would have totally overturned the kingdom, and thrown it into confusion, had not the wisdom of the king prevented her from intermeddling with the affairs of the state. He carefully concealed from her whatever acts of liberality he showed to any of his domestics. "Take care (said he to them) that the queen don't perceive it."—Henry duke of Burgundy, brother of Hugh Capet, dying in 1002, without lawful issue, left his dukedom to his nephew the king of France. Robert invested his second son Henry with this dukedom, who afterwards coming to the crown, resigned it in favour of Robert his cadet. This duke Robert was chief of the first royal branch of the dukes of Burgundy, who flourished till 1361. This dukedom was then re-united to the crown by king John, who gave it to his fourth son Philip the Bold, chief of the second house of Burgundy, which was terminated in the person of Charles the Rash, who was slain in 1477. King Robert was so much esteemed for his wisdom and prudence, that

Robert.

Robert. he was offered the empire and kingdom of Italy, which, however, he declined to accept. Hugh, called the *Great*, whom he had had by Constance, being dead, he caused his second son Henry I. to be crowned at Rheims. He died at Melun, July 20. 1031, at the age of 60. Robert was, according to the knowledge of the times, a wise prince. Helgand, friar of Fleury, relates, in his life of him, that, to prevent his subjects from falling into the crime of perjury, and incurring the penalties which followed thereon, he made them swear upon a shrine from which the relics had been previously removed, as if intention did not constitute perjury! and long after similar reasoning was adopted. Robert built a great number of churches, and procured a restitution to the clergy of the tithes and wealth which the lay-lords had made themselves masters of. The depredations were such, that the laity possessed the ecclesiastical treasures by hereditary titles; they divided them among their children; they even gave benefices as a dowry with their daughters, or left them to their sons as lawful inheritance. Although Robert was pious, and although he respected the clergy, yet it was evident that he opposed the bishops with a firmness and resolution of which, for many ages, they had had no examples. Lutheric, archbishop of Sens had introduced into his diocese the custom of proving by the eucharist persons accused as guilty of any crime. The king wrote to him in the following strong terms: "I swear (says he) by the faith I owe to God, that if you do not put a stop to the gross abuse complained of, you shall be deprived of your priesthood." The prelate was forced to comply. He punished, in 1022, the Manichæans, canons of Orleans, by burning them at the stake. There are, however, recorded of him some less severe actions, which it is right to mention. A dangerous conspiracy against his person and government having been discovered, and the authors taken into custody, he seized the moment when their judges had met to sentence them to death, to cause an elegant repast to be served up to them. Next day they were admitted to the eucharist. Then Robert told them, that he gave them their pardon, "because none of those can die whom Jesus Christ came to receive at his table." One day when he was at prayers in the chapel, he perceived a thief, who had cut off the half of the fringe of his mantle, proceeding to take the remainder; "Friend (says he with a pleasant countenance), be content with what you have already taken, the rest will very well serve some other." Robert cultivated, and was a patronizer of the sciences. There are several hymns wrote by him, which still continue to be sung in the church. His reign was happy and tranquil. According to some authors, he instituted the order of the Star, commonly attributed to king John.

ROBERT of France, second son of Louis VIII. and brother to St Louis, who erected in his favour Artois into a royal peerage in the year 1237. It was during this time that the unlucky difference between pope Gregory IX. and the emperor Frederic II. took place. Gregory offered to St Louis the empire for Robert; but the French noblesse, having met to deliberate on this proposal, were of opinion that he ought to reject it. He gave the pope for answer: "That Count Robert esteemed himself sufficiently honoured by being the brother of a king, who surpassed in dignity, in

strength, in wealth, and in birth, all other monarchs in the world." Robert accompanied St. Louis into Egypt, and fought with more bravery than prudence at the battle of Maffoure, on the 9th of February 1250. In his pursuit of the cowards through a certain small village, he was killed by stones, sticks, and other things which they threw at him from the windows. He was an intrepid prince, but too passionate, dogmatical, and quarrelsome.

ROBERT II. Count of Artois, son of the preceding, furnished the Good and the Noble, was at the expedition into Africa in 1270. He drove the rebels from Navarre in 1276. He brought a very powerful assistance to Charles I. king of Naples, of which kingdom he was regent during the captivity of Charles II. He defeated the Arragonians in Sicily in 1289, the English near Bayonne in 1296, and the Flemish at Furnes in 1298. But having in 1302 imprudently attempted to force these last, when encamped near Courtray, he received no less than 30 wounds; and in that expedition lost both his honour and his life. He was a brave, but passionate and fierce man, and good at nothing but pugilistic encounters. Mahaud his daughter inherited the dukedom of Artois, and gave herself in marriage to Otho duke of Burgundy, by whom she had two daughters, Jane wife of Philip the Long, and Blanche wife of Charles the Fair. In the mean time Philip, son of Robert II. had a son,

ROBERT III. who disputed the dukedom of Artois with Mahaud his aunt; but he lost his suit by two sentences given in against him in 1302 and 1318. He wished to revive the process in 1329, under Philip of Valois, by means of pretended new titles, which were found to be false. Robert was condemned the third time, and banished the kingdom in 1331. Having found an asylum with Edward III. king of England, he undertook to declare him king of France; which proved the cause of those long and cruel wars which distressed that kingdom. Robert was wounded at the siege of Vannes in 1342, and died of his wound in England. John, son to Robert, and count of Eu, was taken prisoner at the battle of Poitiers in 1356, and terminated his career in 1387. His son Philip II, high constable of France, carried on war in Africa and Hungary, and died in 1397, being a prisoner of the Turks. He had a son named Charles, who died in 1472, leaving no issue.

ROBERT of Anjou, surnamed the Wise, third son of Charles the Lamb, succeeded his father in the kingdom of Naples in 1309, by the protection of the popes, and the will of the people, to the exclusion of Charobert son of his eldest brother. He aided the Roman pontiffs against the emperor Henry VII. and, after the death of that prince, was nominated in 1313 vicar of the empire in Italy, in temporal matters, unless a new emperor was elected. This title was given him by Clement V. in virtue of a right which he pretended to have to govern the empire during an interregnum. Robert reigned with glory 33 years, eight months, and died on the 19th of January 1343, aged 64. "This prince (says M. De Montigni) had not those qualities which constitute heroes, but he had those which make good kings. He was religious, affable, generous, kind, wife, prudent, and a zealous promoter of justice." He was called the *Solomon* of his age. He loved the poor, and

caused a ticket to be placed upon his palace, to give notice when he meant to distribute from the throne. He had no other passion but a very great love for learning. He used to say, that he would rather renounce his crown than his study. His court soon became the sanctuary of the sciences, which he encouraged equally by his example and his bounty. This prince was versed in theology, jurisprudence, philosophy, mathematics, and medicine. Bocace says, "that since the days of Solomon we have not seen so wise a prince upon the throne." For a great part of his life he had no taste for poetry; he even despised it, as, in his opinion, unworthy of a man of learning. A conversation which he had with Petrarch, however, undeceived him; he retained this poet at his court, and attempted himself to write some poems, which are still extant. He was forced to engage a little in war, for which he possessed no great talents: alluding to which, may be seen on his tomb a wolf and a lamb drinking out of the same vessel. Philip of Valois refrained from giving battle in 1339, by the repeated advice which this prince gave him, who was a great friend to France, both from inclination and interest. He detested quarrels among Christian princes, and had studied the science of astrology, not so much to know the course of the stars, as to learn by this chimerical science the hidden things of futurity. He believed that he read in the grand book of heaven a very great misfortune which would befall France if Philip hazarded a battle against the English.

ROBERT the First, called the Magnificent, duke of Normandy, second son of Richard II. succeeded in 1208 his brother Richard III. whom it is reported he poisoned. He had early in his reign to suppress frequent rebellions of several of the great vassals. He re-established in his estates Baudouin IV. count of Flanders, who had been unjustly stripped of his possessions by his own son. He forced Canute king of Denmark, who was also king of England, to divide his possessions with his cousins Alfred and Edward. In the year 1035, he undertook barefooted a journey to the Holy Land; on his return from which he died, being poisoned at Nice in Bithynia, leaving as his successor William his natural son, afterwards king of England, whom he had caused before his departure to be publicly acknowledged in an assembly of the states of Normandy.

ROBERT, or *Rupert*, surnamed the Short and the Mild, elector Palatine, son of Robert the Niggardly, was born in 1352, and elected emperor of Germany in 1400, after the deposition of the cruel Wenceslas. In order to gain the affection of the Germans, he wished to restore Milan to the empire, which Wenceslas had taken from it; but his attempts in this respect were unsuccessful. His attachment to the anti-pope Gregory XII. entirely alienated the affections of the German princes. To such a degree were they incensed against him, that they entered into a conspiracy to cut him off; but his death, which happened on the 18th of May 1410, being then 58 years old, put a stop to their machinations. Robert began to settle the sovereignty of the German princes. The emperors had formerly retained in their own hands the power of life and death, within the territories of a great many of the nobles; but he yielded them this right by his letters patent. The chief fault imputed to this prince was an excess of

lenity. But, if we consider the plots which he had to detect, the conspiracies which he had to frustrate, the secret and powerful enemies he had to deal with; if we inquire also into the commotions which the wicked administration of Wenceslas had excited, the irruptions and devastations of plunderers and highway robbers, which the nobles countenanced, and the distressed situation in which he found Germany, we must without hesitation conclude, that his lenity indicated his prudence, in restoring by slow degrees the empire to its original tranquillity. Robert had his virtues, he loved his subjects, and governed them with wisdom. Possessed of much political knowledge for the age in which he lived, he wanted nothing but talents for war to make him an accomplished prince. He was twice married. The name and rank of his first wife is unknown; he had by her a son, who died before him. His second wife was Elizabeth, daughter of Frederic burgrave of Nuremberg, by whom he had five sons and three daughters. The three daughters were, Margaret married to Charles duke of Lorraine; Agnes to Adolphus duke of Cleves; Elizabeth to Frederic duke of Austria. His sons were, Louis the first of the electoral branch, which became extinct in 1559; John father of Christopher king of Denmark; Frederic who died without issue; Otho count of Sinsheim; lastly, Stephen, from whom descended the elector, and the other counts palatine of the Rhine, who are extant at this day.

ROBERT (of Bavaria), prince palatine of the Rhine, and duke of Cumberland, the son of Frederic, elector palatine, by Elizabeth, daughter of James I. king of England, distinguished himself by his valour as a general and admiral; first in the Dutch, and then in the English service. He was unsuccessful in the cause of his uncle Charles I. against the parliament forces; but under Charles II. he defeated the Dutch fleet, and was made lord high admiral of England in 1673. This prince was a lover of the sciences, and particularly skilful in chemistry. He died in 1682.

ROBERTSON (Dr William), one of the most celebrated historians of his age, was one of those great characters whose private life, flowing in an even and unvaried stream, can afford no important information to the biographer, although his writings will be read to the latest posterity with undiminished pleasure. He was born at the manse of Borthwick in the year 1721. His father was, at the time of his death, one of the ministers of the Old Grey Friars church in Edinburgh, which the Doctor came afterwards to supply. In 1743 he was licenced preacher, and placed in the parish of Gladsmuir in 1744; whence, in 1758, he was translated to Lady Yester's parish in Edinburgh. In 1761, on the death of Principal Goldie, he was elected principal of the university of Edinburgh, and appointed one of the ministers of the Old Grey Friars church. About this period he received the degree of Doctor of Divinity, and was appointed historiographer to his majesty for Scotland, and one of his majesty's chaplains for that kingdom.

We find it not easy to ascertain at what period were first unfolded the great and singular talents which destined Dr Robertson to be one of the first writers that rescued this island from the reproach of not having any good historians. We are, however, assured, that before the publication of any of his literary performances,

Robert,
Robertson.

Robertson. even from his first appearance in public life, his abilities had begun to attract the notice of observing men; and to his more intimate friends he discovered marks of such high-minded ambition, as, seconded by those abilities, could not have failed to carry him to the first honours of his profession, in whatever sphere he had been placed, and whatever opposition he might have had to combat.

The first theatre that offered for the display of his talents, was the General Assembly of the Church of Scotland. It is the annual meetings of this court that produce to view men who would otherwise remain in the deepest obscurity. There the humble pastor, whose lot has been cast in the remotest corner of the Highland wilds, feels himself, for a time, on a footing of equality with the first citizen in the kingdom: he can there dispute with him the prize of eloquence, the most flattering distinction to a liberal mind; a distinction which is naturally sought after with the greater eagerness in that assembly, as the simple establishment of the church of Scotland has rendered it the only pre-eminence to which the greatest part of its members can ever hope to attain.

From the moment Dr Robertson first appeared in this assembly, he became the object of universal attention and applause. His speeches were marked with the same manly and persuasive eloquence that distinguishes his historical compositions; and it was observed by all, that while his young rivals in oratory contented themselves with opening a cause, or delivering a studied harangue, he showed equal ability to start objections, to answer, or to reply; and that even his most unpremeditated effusions were not unadorned with those harmonious and seemingly measured periods, which have been so much admired in his works of labour and reflection. He soon came to be considered as the ablest supporter of the cause he chose to espouse, and was now the unrivalled leader of one of the great parties which have long divided the church of which he was a member.

When we reflect upon this circumstance, and consider how much mankind are the same in every society, we shall be the less surprised to find, in the literary works of Dr Robertson, an acquaintance with the human heart, and a knowledge of the world, which we look for in vain in other historians. The man who has spent his life in the difficult task of conducting the deliberations of a popular assembly, in regulating the passions, the interests, the prejudices, of a numerous faction, has advantages over the pedant, or mere man of letters, which no ability, no study, no second-hand information, can ever compensate.

The first work which extended the Doctor's reputation beyond the walls of the general assembly, was a sermon preached at Edinburgh before the society for propagating Christian knowledge, and afterwards published; the subject of which was, 'The state of the world at the appearance of Jesus Christ.' The ingenuity with which a number of detached circumstances are there collected, and shown to tend to one single point, may perhaps rival the art which is so much admired in the bishop of Meaux's celebrated Universal History.

This sermon did great honour to the author; and it is probably to the reputation he gained by it, that we

ought to attribute the unanimity with which he was Robert called to be one of the ministers of Edinburgh—an event which happened not long after, viz. in the year 1758. In 1759, he published, in two volumes quarto, 'The History of Scotland, during the reigns of Queen Mary and of King James VI. till his Accession to the Crown of England, with a Review of the Scots History previous to that period.' This work in its structure is one of the most complete of all modern histories. It is not a dry jejune narrative of events, destitute of ornament; nor is it a mere frothy relation, all glow and colouring. The historian discovers a sufficient store of imagination to engage the reader's attention, with a due proportion of judgment to check the exuberance of fancy. The arrangement of his work is admirable, and his descriptions are animated. His style is copious, nervous, and correct. He has displayed consummate skill in rendering such passages of our history as are familiar to our recollection agreeable and entertaining. He has embellished old materials with all the elegance of modern dress. He has very judiciously avoided too circumstantial a detail of trite facts. His narratives are succinct and spirited; his reflections copious, frequent, and generally pertinent. His sentiments respecting the guilt of Mary have indeed been warmly controverted by Messrs Tytler, Stuart, and Whitaker; and the general opinion now seems to be, that their victory is complete. That victory, however, on the part of Whitaker, is sullied by the acrimony with which he writes. Dr Robertson was no rancorous or malignant enemy of the unfortunate queen. While relating, what he doubtless believed, he makes every possible allowance for Mary from the circumstances in which she was placed; and his history will be read with pleasure by candid men of all parties as long as the language in which it is composed shall continue to be understood.

In 1769, Dr Robertson published, in three volumes quarto, 'The History of the Reign of the Emperor Charles V. with a View of the Progress of Society in Europe, from the Subversion of the Roman Empire to the beginning of the 16th century.—The vast and general importance of the period which this history comprises, together with the reputation which our historian had deservedly acquired, co-operated to raise such high expectations in the public, that no work perhaps was ever more impatiently wished for, or perused with greater avidity. The first volume (which is a preliminary one, containing the progress of society in Europe, as mentioned in the title) is a very valuable part of the work; for it serves not only as a key to the pages that follow, but may be considered as a general introduction to the study of history in that period in which the several powers of Europe were formed into one great political system, in which each took a station, wherein it has since remained (till within a very few years at least) with less alterations than could have been expected, after the shocks occasioned by so many internal revolutions, and so many foreign wars. Of the history itself, it may be sufficient to observe, that it is justly ranked among the capital pieces of historical excellence. There is an elegance of expression, a depth of discernment, and a correctness of judgment, which do honour to the historian. The characters are inimitably penned. They are not contrived by a studied antithesis, but by an opposition which results from a very

very acute and penetrating insight into the real merits of each character, fairly deduced from the several circumstances of his conduct exemplified in the history. For this work the Doctor got L.4500 Sterling.

In 1779, Dr Robertson published *The History of America*, in two volumes quarto. This celebrated work may be considered with great propriety as a sequel to the preceding history. From the close of the 15th century we date the most splendid era in the annals of modern times. Discoveries were then made, the influence of which descended to posterity; and events happened that gave a new direction to the spirit of nations.

To the inhabitants of Europe, America was in every respect a new world. There the face of the earth changed its appearance. The plants and trees and animals were strange; and nature seemed no longer the same. A continent opened that appeared to have recently come from the hands of the Creator, and which showed lakes, rivers, and mountains, on a grander scale, and the vegetable kingdom in greater magnificence, than in the other quarters of the globe; but the animal tribes in a state of degradation, few in number, degenerated in kind, imperfect, and unfinished. The human species in the earliest stage of its progress, vast and numerous nations in the rudest form of the savage state which philosophers have contemplated, and two great empires in the lowest degree of civilization which any records have transmitted to our review, presented to the philosophic eye at this period the most fruitful subject of speculation that was to be found in the annals of history.

The discovery of the New World, moreover, was not only a curious spectacle to the philosopher, but, by the change which it effected, an interesting spectacle to the human race. When Columbus set sail for unknown lands, he little expected that he was to make a revolution in the system of human affairs, and to form the destiny of Europe for ages to come. The importance and celebrity therefore of the subject had attracted the attention of philosophers and historians. Views and sketches of the new world had been given by able writers, and splendid portions of the American story had been adorned with all the beauties of eloquence. But, prior to the appearance of Dr Robertson's history, no author had bestowed the mature and profound investigation which such a subject required, or had finished, upon a regular plan, that complete narration and perfect whole which it is the province of the historian to transmit to posterity. And as the subject upon which our author entered was grand, his execution was masterly. The character of his former works was immediately discerned in it. They had been read with uncommon admiration. When the *History of Scotland* was first published, and the author altogether unknown, Lord Chesterfield pronounced it to be equal in eloquence and beauty to the productions of Livy, the purest and most classical of all the Roman historians. His literary reputation was not confined to his own country: the testimony of Europe was soon added to the voice of Britain. It may be mentioned, indeed, as the characteristic quality of our author's manner, that he possessed in no common degree that supported elevation which is suitable to compositions of the higher class; and, in his *History of America*, he displayed that hap-

py union of strength and grace which becomes the majesty of the historic muse. In the fourth book of his first volume, which contains a description of America when first discovered, and a philosophical inquiry into the manners and policy of its ancient inhabitants, he displays, moreover, so much patient investigation and sound philosophy, abounds in such beautiful or interesting description, and exhibits such variety and copiousness of elegant writing, that future times will probably refer to it as that part of his works which gives the best idea of his genius, and is the most finished of all his productions.

In 1787 appeared a translation of the Abbé Clavigero's *History of Mexico*; in which work the author threw out various reflections, tending in several instances to impeach the credit of Dr Robertson's *History of America*. This attack induced our learned historian to revise his work, and to inquire into the truth of the charges brought against it by the historian of New Spain: and this he appears to have done with a becoming attention to the importance of the facts that are controverted, and to the common interests of truth. The result he published in 1788, under the title of *Additions and Corrections to the former Editions of Dr Robertson's History of America*.—In many of the disputed passages, he fully answered the Abbé Clavigero, and vindicated himself: in others he candidly submitted to correction, and thus gave additional value to his own work.

The literary labours of Dr Robertson appear to have been terminated in 1791 by the publication of *An Historical Disquisition concerning the Knowledge which the Ancients had of India, and the Progress of Trade with that Country prior to the Discovery of the Passage to it by the Cape of Good Hope; with an Appendix, containing Observations on the Civil Polity, the Laws, and Judicial Proceedings, the Arts, the Sciences, and Religious Institutions of the Indians*.—The perusal of Major Rennell's *Memoir*, for illustrating his map of Hindostan, suggested to Dr Robertson the design of examining more fully than he had done, in his *History of America*, into the knowledge which the ancients had of India, and of considering what is certain, what is obscure, and what is fabulous, in their accounts of that remote country. Of his various performances, this is not that of which the design is the most extensive, or the execution the most elaborate; but in this historical disquisition we perceive the same patient assiduity in collecting his materials, the same discernment in arranging them, the same perspicuity of narrative, and the same power of illustration, which so eminently distinguish his other writings, and which have long rendered them the delight of the British reader at home and an honour to British literature abroad.

A truly useful life Dr Robertson closed on the 11th of June 1793, at Grange-House, near Edinburgh, after a lingering illness, which he endured with exemplary fortitude and resignation. It may be truly observed of him, that no man lived more respected, or died more sincerely lamented. Indefatigable in his literary researches; and possessing from nature a sound and vigorous understanding, he acquired a store of useful knowledge, which afforded ample scope for the exertion of his extraordinary abilities, and raised him to the most distinguished eminence in the republic of letters. As

Robigus
Robinia.

a minister of the gospel, he was a faithful pastor, and justly merited the esteem and veneration of his flock. In a word, he may be pronounced to be one of the most perfect characters of the age; and his name will be a lasting honour to the island that gave him birth. His conversation was cheerful, entertaining, and instructive; his manners affable, pleasing, and endearing.

Dr Robertson left three sons and two daughters. The eldest son is procurator for the church of Scotland, and an advocate. The other two are officers in the army; and one of them distinguished himself under Lord Cornwallis in such a manner as to command the warmest praise from that illustrious general.

ROBIGUS AND ROBIGO, a Roman god and goddess, who joined in the preservation of corn from blight. Their festival was kept on the 25th of April.

ROBIN HOOD. See HOOD.

ROBIN Red-Breast. See MOTACILLA.

ROBINIA, FALSE ACACIA, in botany: A genus of the decandria order, belonging to the diadelphia class of plants; and in the natural method ranking under the 32d order, *Papilionaceae*. The calyx is quadrid; the legumen gibbous and elongated. There are nine species. The most remarkable are the caragana and ferox, the leaves of the former of which are conjugated, and composed of a number of small folioles, of an oval figure, and ranged by pairs on one common stock. The flowers are leguminous, and are clustered on a filament. Every flower consists of a small bell-shaped petal, cut into four segments at the edge, the upper part being rather the widest. The keel is small, open, and rounded. The wings are large, oval, and a little raised. Within are 10 stamina united at the base, curved towards the top, and rounded at the summit. In the midst of a sheath, formed by the filaments of the stamina, the pistil is perceivable, consisting of an oval germen, terminated by a kind of button. This germen becomes afterwards an oblong flattish curved pod, containing four or five seeds, of a size and shape irregular and unequal; yet in both respects somewhat resembling a lentil.

This tree grows naturally in the severe climates of Northern Asia, in a sandy soil mixed with black light earth. It is particularly found on the banks of great rivers, as the Oby, Jenissia, &c. It is very rarely met with in the inhabited parts of the country, because cattle are very fond of its leaves, and hogs of its roots; and it is so hardy, that the severest winters do not affect it. Gmelin found it in the neighbourhood of Tobolsk, buried under 15 feet of snow and ice, yet had it not suffered the least damage. Its culture consists in being planted or sowed in a lightish sandy soil, which must on no account have been lately manured. It thrives best near a river, or on the edge of a brook or spring; but presently dies if planted in a marshy spot, where the water stagnates. If it is planted on a rich soil, well tilled, it will grow to the height of 20 feet, and in a very few years will be as big as a common birch tree.

In a very bad soil this tree degenerates, and becomes a mere shrub: the leaves grow hard, and their fine bright green colour is changed to a dull deep green. The Tungusian Tartars, and the inhabitants of the northern parts of Siberia, are very fond of the fruit of this tree, it being almost the only sort of pulse they eat. M. Strahlenberg, author of a well-esteemed description

of Siberia, assures us that this fruit is tolerably pleasant food, and very nourishing. These pease are first infused in boiling water, to take off a certain acrid taste they have, and are afterwards dressed like common pease or Windsor beans; and being ground into meal, pretty good cakes are made of them. The leaves and tender shoots of this tree make excellent fodder for several sorts of cattle. The roots, being sweet and succulent, are very well adapted to fattening hogs; and the fruit is greedily eaten by all sorts of poultry. After several experiments somewhat similar to the methods used with anil and indigo, a fine blue colour was procured from its leaves. The smaller kind of this tree seems still better adapted to answer this purpose. The striking elegance of its foliage, joined to the pleasing yellow colour of its beautiful flowers, should, one would imagine, bring it into request for forming nosegays, or for speedily making an elegant hedge.

Besides the qualities above recited, it possesses the uncommon advantage of growing exceedingly quick, and of being easily transplanted. There are large plantations of it now in Sweden, Norway, Lapland, and Iceland. Linnaeus assures us, that, after the *Pinus foetida*, erroneously called the cedar tree of Siberia, this tree, of all that are to be found in Siberia, is most worthy of cultivation.

2. The robinia ferox is a beautiful hardy shrub, and, on account of its robust strong prickles, might be introduced into this country as a hedge plant, with much propriety. It resists the severest cold of the climate of St Petersburg, and perfects its seed in the garden of the empress there. It rises to the height of six or eight feet; does not send out suckers from the root, nor ramble so much as to be with difficulty kept within bounds. Its flowers are yellow, and the general colour of the plant a light pleasing green. A figure of it is given in the *Flora Rossica* by Dr Pallas, who found it in the southern districts, and sent the seeds to St Petersburg, where it has prospered in a situation where few plants can be made to live.

ROBINS (Benjamin), a most ingenious mathematician, was born at Bath in 1707. His parents were Quakers, and of low condition, consequently neither able nor willing to have him much instructed in human learning. Nevertheless his own propensity to science procured him a recommendation to Dr Pemberton at London; by whose assistance, while he attained the sublimer parts of mathematical knowledge, he commenced teacher of the mathematics. But the business of teaching, which required confinement, not suiting his active disposition, he gradually declined it, and engaged in business that required more exercise. Hence he tried many laborious experiments in gunnery, from the persuasion that the resistance of the air has a much greater influence on swift projectiles than is generally imagined. Hence also he was led to consider the mechanic arts that depend on mathematical principles; as the construction of mills, the building of bridges, the draining of fens, the rendering of rivers navigable, and the making of harbours. Among other arts, fortification much engaged his attention; and he met with opportunities of perfecting himself by viewing the principal strong places of Flanders, in some tours he made abroad with persons of distinction.

Upon his return from one of these excursions, he found

found the learned amused with Dr Berkeley's work, intitled *The Analyst*, in which an attempt was made to explode the method of fluxions. Mr Robins was therefore advised to clear up this affair by giving a distinct account of Sir Isaac Newton's doctrines, in such a manner as to obviate all the objections that had been made without naming them. Accordingly he published, in 1735, *A Discourse concerning the Nature and Certainty of Sir Isaac Newton's Method of Fluxions*: and some exceptions being made to his manner of defending Sir Isaac Newton, he afterwards wrote two or three additional discourses. In 1738 he defended the same great philosopher against an objection contained in a note at the end of a Latin piece, called *Matho, sive Cosmotheoria puerilis*; and the following year printed *Remarks on M. Euler's Treatise of Motion*, on Dr Smith's *System of Optics*, and on Dr Jurin's *Discourse of distinct and indistinct Vision* annexed to Dr Smith's work. In the meanwhile, Mr Robins did not solely confine himself to mathematical subjects: for in 1739 he published three pamphlets on political affairs, without his name; when two of them, relating to the convention and negotiations with Spain, were so universally esteemed, as to occasion his being employed in a very honourable post; for on a committee being appointed to examine into the past conduct of Sir Robert Walpole, he was chosen their secretary.

In 1742, Mr Robins published a small treatise, intitled *New Principles of Gunnery*, containing the result of many experiments; when a Discourse being published in the *Philosophical Transactions*, in order to invalidate some of his opinions, he thought proper, in an account he gave of his book in the same Transactions, to take notice of those experiments; in consequence of which, several of his Dissertations on the Resistance of the Air were read, and the experiments exhibited before the Royal Society, for which he was presented by that honourable body with a gold medal.

In 1748 appeared Lord Anson's Voyage round the World; which, though Mr Walter's name is in the title, has been generally thought to be the work of Mr Robins. Mr Walter, chaplain on board the Centurion, had brought it down to his departure from Macao for England, when he proposed to print the work by subscription. It was, however, it is said, thought proper, that an able judge should review and correct it, and Mr Robins was appointed; when, upon examination, it was resolved that the whole should be written by Mr Robins, and that what Mr Walter had done should only serve as materials. Hence the introduction entire, and many dissertations in the body of the work, it is said, were composed by him, without receiving the least assistance from Mr Walter's manuscript, which chiefly related to the wind and the weather, the currents, courses, bearings, distances, the qualities of the ground on which they anchored, and such particulars as generally fill up a sailor's account. No production of this kind ever met with a more favourable reception; four large impressions were sold within a twelvemonth; and it has been translated into most of the languages of Europe. The fifth edition, printed at London in 1749, was revised and corrected by Mr Robins himself. It appears, however, from the corrigenda and addenda to the 1st volume of the *Biographia Britannica*, printed in the beginning of the fourth volume of that work, that

Mr Robins was only consulted with respect to the disposition of the drawings, and that he had left England before the book was printed. Whether this be the fact, as it is asserted to be by the widow of Mr Walter, it is not for us to determine.

Robins,
Robinson.

It is certain, however, that Mr Robins acquired the fame, and he was soon after desired to compose an apology for the unfortunate affair at Prestonpans in Scotland, which was prefixed as a preface to The Report of the Proceedings of the Board of General Officers on their Examination into the Conduct of Lieutenant-General Sir John Cope; and this preface was esteemed a masterpiece in its kind. He afterwards, through the interest of Lord Anson, contributed to the improvements made in the Royal Observatory at Greenwich. Having thus established his reputation, he was offered the choice of two considerable employments; either to go to Paris as one of the commissaries for adjusting the limits of Arcadia, or to be engineer-general to the East India company. He chose the latter, and arrived in the East Indies in 1750; but the climate not agreeing with his constitution, he died there the year following.

ROBINSON (the most Rev. Sir Richard), archbishop of Armagh and Lord Rokeby, was immediately descended from the Robinsons of Rokeby in the North Riding of the county of York, and was born in 1709. He was educated at Westminster school, from whence he was elected to Christ-Church, Oxford, in 1726. After continuing his studies there the usual time, Doctor Blackburne, archbishop of York, appointed him his chaplain, and collated him first to the rectory of Elton, in the East Riding of Yorkshire, and next to the prebend of Grindal, in the cathedral of York. In 1751 he attended the Duke of Dorset, lord-lieutenant of Ireland, to that kingdom, as his first chaplain, and the same year was promoted to the bishopric of Killala. A family connection with the Earl of Holderness, who was secretary of state that year, with the Earl of Sandwich and other noblemen related to him, opened the fairest prospects of attaining to the first dignity in the Irish church. Accordingly in 1759 he was translated to the united sees of Leighlin and Ferns, and in 1761 to Kildare. The Duke of Northumberland being appointed to the lieutenancy of Ireland in 1765, he was advanced to the primacy of Armagh, made lord-almoner, and vice-chancellor of the university of Dublin. When Lord Harcourt was lord-lieutenant of Ireland in 1777, the king was pleased by privy-seal at St James's, February 6th, and by patent at Dublin the 26th of the same month, to create him Baron Rokeby of Armagh, with remainder to Matthew Robinson of West Layton, Esq; and in 1783 he was appointed prelate to the most illustrious order of St Patrick. On the death of the Duke of Rutland lord-lieutenant of Ireland in 1787, he was nominated one of the lords-justices of that kingdom. Sir William Robinson, his brother, dying in 1785, the primate succeeded to the title of baronet, and is the survivor in the direct male line of the Robinsons of Rokeby, being the 8th in descent from William of Kendal. His grace died at Clifton near Bristol in the end of October 1794.

No primate ever sat in the see of Armagh who watched more carefully over the interest of the church of Ireland, as the statute-book evinces. The act of the

Robinson. 11th and 12th of his present majesty, which secures to bishops and ecclesiastical persons repayment by their successors of expenditures in purchasing glebes and houses, or building new houses, originated from this excellent man, and must ever endear his name to the clergy. The other acts for repairing churches, and facilitating the recovery of ecclesiastical dues, were among the many happy exertions of the primate.

But it was at Armagh, the ancient seat of the primacy, that he displayed a princely munificence. A very elegant palace, 90 feet by 60, and 40 high, adorns that town; it is light and pleasing, without the addition of wings or lesser parts; which too frequently wanting a sufficient uniformity with the body of the edifice, are unconnected with it in effect, and divide the attention. Large and ample offices are conveniently placed behind a plantation at a small distance. Around the palace is a large lawn, which spreads on every side over the hills, skirted by young plantations, in one of which is a terrace, which commands a most beautiful view of cultivated hill and dale; this view from the palace is much improved by the barracks, the school, and a new church at a distance; all which are so placed as to be exceedingly ornamental to the whole country.

The barracks were erected under the primate's direction, and form a large and handsome edifice. The school is a building of considerable extent, and admirably adapted for the purpose; a more beautiful or better contrived one is nowhere to be seen; there are apartments for a master, a school-room 56 feet by 28, a large dining room and spacious airy dormitories, with every other necessary, and a spacious play-ground walled in; the whole forming a handsome front: and attention being paid to the residence of the master (the salary is 400*l.* a year), the school flourishes, and must prove one of the greatest advantages to the country. This edifice was built entirely at the primate's expence. The church is erected of white stone, and having a tall spire, makes a very agreeable object, in a country where churches and spires do not abound. The primate built three other churches, and made considerable reparations to the cathedral; he was also the means of erecting a public infirmary, contributing amply to it himself: he likewise constructed a public library at his own cost, endowed it, and gave it a large collection of books; the room is 45 feet by 25, and 20 high, with a gallery and apartments for the librarian. The town he ornamented with a market-house and shambles, and was the direct means, by giving leases upon that condition, of almost new-building the whole place. He found it a nest of mud cabins, and he left it a well-built city of stone and slate. These are noble and spirited works, in which the primate expended not less than *l.* 30,000. Had this sum been laid out in improving a paternal estate, even then they would be deserving great praise; but it is not for his posterity but the public good that his grace was so munificent. A medal was struck by the ingenious William Mossop of Dublin, which has on one side the head of the primate, inscribed "Richard Robinson, Baron Rokeby, Lord Primate of all Ireland." And on the reverse, the south front of the observatory at Armagh, erected by his grace, with this admirable motto, "The Heavens declare the glory of God."

MDCCLXXXIX.

ROBINSON (Robert), a dissenting minister of consi-

derable note, was born on the 8th of October 1735 at Swaffham in Norfolk. His father died when he was young; and his maternal grandfather Robert Wilkin, of Mildenhall, Suffolk, gent. who had ever been dissatisfied with his daughter's marriage, deprived him of his maternal inheritance, cutting him off with half-a-guinea. His uncle, however, who was a substantial farmer, in some measure supplied this loss. He took Mr Robinson home, and placed him under the Rev. Joseph Brett, at Scarning school in Norfolk, with a view to the ministry of the church of England; where he had for one of his school-fellows the lord-chancellor Thurlow. When about the age of 15 or 16, he imbibed the notions of George Whitfield; on which account he was discarded by his uncle, and again exposed to poverty and want. He first directed his thoughts towards the ministry in the year 1754, and commenced preacher in the following year at the age of 20; preaching his first sermon to a congregation of poor people at Mildenhall. He continued for a year or two as one of Mr Whitfield's preachers, and during that period he married. In the year 1758, however, he determined to separate from the Methodists; after which he settled at Norwich with a small congregation formed chiefly of his methodistic friends, being at that time an Independent. In the year 1759 he was invited to Cambridge, and for two years preached on trial to a congregation consisting of no more than 34 people, and so poor that they could only raise *L.* 3 : 6 : 0 a quarter for his subsistence. In June 1761 he settled as their pastor, and was ordained in the usual manner; at which time we are told he exercised the office of a barber. In 1774, his congregation had so much increased as to consist of 1000 souls, including children and servants.

In Cambridge Mr Robinson's talents soon attracted notice, and he quickly set up a Sunday evening lecture, which was well attended. His preaching was altogether without notes; a method in which he was peculiarly happy: not by trusting to his memory entirely, nor by working himself up to a degree of warmth and passion, to which the preachers among whom he first appeared commonly owe their ready utterance; but by thoroughly studying and making himself perfectly master of his subject, and a certain faculty of expression which is never at a loss for suitable and proper words. In short, his manner was admirably adapted to enlighten the understanding, and to affect and reform the heart. He had such a plainness of speech, such an easy and apparent method in dividing a discourse, and such a familiar way of reasoning, as discovered an heart filled with the tenderest concern for the meanest of his hearers; and yet there was a decency, propriety, and justness, that the most judicious could not but approve. Several gentlemen of the university, eminent for character and abilities, we are told, were his constant hearers.

The circumstances which lost him his uncle's patronage paved the way for the future events of his life. The incident which made him discard the common sentiments on the subject of baptism, at once marked the turn of his mind, and shows what apparently slight causes frequently determine the lot and usefulness of our lives. He was invited to the baptism of a child; the minister who was to perform the service keeping the company in long expectation of his appearance, some

son. one suggested, that supposing the child were not baptized at all, he saw not how it could affect his happiness. Though the conversation was not pursued, the hint struck Mr Robinson's mind; and he immediately determined to read the New Testament with this particular view, to examine what it said concerning the baptism of infants. He accordingly began with the Gospel of Matthew; and, in succession, perused the historical and epistolary books; in expectation that he should find in every following part what he had not met with in the preceding parts of the sacred volume; namely, passages recommending and urging this rite. But observing, on the whole, a total silence about it, he thought it his duty to relinquish the practice, as without foundation in the rule of our faith; which appeared to him to speak only of the baptism of believers.

This change of his sentiments was more unfavourable than the former alterations in his religious judgment to his worldly views; and having married very early in life from pure affection, he was involved in great difficulties for near 12 years after his settlement in Cambridge; as, in that course of time, his family became numerous, and the support of an aged mother, as well as of a wife and ten children, depended upon him. But unexpected supplies, from quarters of which he was ignorant, frequently relieved his necessities, and confirmed his trust in Providence: yet the situation of his family must, it is easy to conceive, have much affected his mind. For he appears to have possessed great tenderness and sensibility, and to have regarded with peculiar endearment his domestic connections.

It may be reckoned a circumstance worthy of mention, that the sphere of Mr Robinson's ministry was the same in which his great-grandfather Mr Shelly, of Jesus College, and vicar of All-Saints, had, with others, diffused the principles of the Puritans, about the beginning of the last century. The reputation of the Dissenters in the university and neighbourhood had for almost a century been sinking into contempt, when Mr Robinson settled with the baptist church at Stone-Yard. His abilities and assiduity, however, raised their reputation. The place in which his people assembled, which was at first a barn, afterwards a stable and granary, and then a meeting-house, but still a damp, dark, and ruinous place, soon became too small for the audience; and several of the new auditors being men of fortune, they purchased the site, and erected at their own expence a new house in the year 1764.

His labours as a preacher were not limited to the town of Cambridge; but soon after his coming there, he set up several lectures in the adjacent villages. His lectures were either annual or occasional, or stated on fixed days. The usual time was half an hour after six in the evening; and sometimes at five in the morning; and now and then in the summer at two in the afternoon, for the sake of those who came from a distance.

He died on the 9th of June 1790, at the house of William Ruffel, Esq; of Showell green near Birmingham. He had laboured under an alarming disorder for some time before; but on the Sunday preceding his death he preached a charity sermon. On Monday he was seized with a fit; on Tuesday he recovered and went to bed tolerably well, and was found dead next morning.

The abilities of Mr Robinson were very considerable, as appears from his numerous works; and he possessed

the quality of expressing his thoughts in an easy and a forcible manner. But he appears to have been of an unsteady temper, and, in our opinion, acquires but little credit either from the frequency with which he changed his religious creed (for we have reason to believe he died a Socinian), or from the foolish and undeserved acrimony with which he treated the Church of England. His Plan of Lectures on the Principles of Non-conformity, for the Instruction of Catechumens, is a piece of the most unjust and illiberal abuse that we have ever seen, and would have disgraced the most high flying Puritan of the last century.

Mr Robinson's largest work, the History of Baptism and of the Baptists, was published since his death, and is written in the same style and with the same confidence as his other works. Yet, as we have heard it remarked by a learned and liberal professor of Theology in the church which he opposed, it is not a little remarkable that there is in it no argument or fact against infant baptism which was not answered by Dr Wall nearly 100 years ago, of whose arguments Mr Robinson however takes no notice.

ROBORANTS, in pharmacy, medicines which strengthen the parts, and give new vigour to the constitution.

ROCHEFORT, a handsome and considerable town of France in the territory of Aunis. It was constructed by Louis XIV. and is built in the midst of marshes expressly drained for that purpose; and time evinced the utility of the project, for as a port it soon became as necessary and important to the crown of France as Brest or Toulon. It has a department of the marine, and has large magazines of naval stores. There is also one of the finest halls of arms in the kingdom, and a great many workmen employed in making them; there are also forges for anchors, and work-houses for ship-carpenters, who are employed in every thing that relates to the fitting out of ships that come within the compass of their province. They likewise cast great guns here; and have artists, whose employment is sculpture and painting. There are also stocks for building men of war, rope-walks, magazines of provisions and powder, a manufactory of sail-cloth, an hospital for sailors, and proper places to clean the ships. Add to these, the houses of the intendant, the square of the capuchins, and the superb structure which contains lodgings for 300 marine guards, where they are taught the business and exercises belonging to seamen and officers who go on board the men of war.

Beside the usual number of workmen which were employed at Rochefort during the monarchy, which amounted to about 900, there were about 600 galley slaves, occupied in the most painful and laborious branches of service. The town is situated on the river Charente, about five leagues from its mouth, and was fortified by Louis XIV. at the time he constructed it; but its situation is at so considerable a distance from the sea, as to render it sufficiently secure from any attack, and they have therefore closed up the battlements, and neglected the fortifications. The town is laid out with great beauty and elegance. The streets are all very broad and straight, extending through the whole place from side to side; but the buildings do not correspond with them in this respect, as they are mostly low and irregular. W. Long. c. 54. N. Lat. 46. 3.

R r

ROCHE-

Roborans,
Rochefort.

Rochefou-
cault.

ROCHEFOUCAULT (Francis earl of), descended of an illustrious family, next in dignity to that of the sovereigns, was chamberlain to king Charles VIII. and Louis XII. His character at court was admired as obliging, generous, upright, and sincere. In 1494 he stood godfather to Francis I. who, when he came to the throne, continued to pay great respect to that spiritual relation. He made him his chamberlain in ordinary, and erected, in 1515, the barony of Rochefoucault into an earldom; and, in his writ of erection, observes, that he did this in memory of the great, honourable, highly useful, and commendable services which the said Francis had done to his predecessors, to the crown of France, and to himself. The earl of Rochefoucault died in 1517, leaving behind him an illustrious memory, and a character universally respected. Since his time all the eldest sons of that family have taken the name of Francis.

ROCHEFOUCAULT (Francis duke de la), prince of Marillac, governor of Poitou, was born in 1603. —He was the son of Francis, the first duke of Rochefoucault, and was distinguished equally by his courage and his wit. These shining qualities endeared him to all the nobility at court, who were ambitious of decorating themselves at once with the laurels of Mars and of Apollo. He wrote two excellent works; the one a book of Maxims, which M. de Voltaire says has contributed more than any thing else to form the taste of the French nation; and the other, Memoirs of the Regency of Queen Anne of Austria. It was partly at the instigation of the beautiful duchess de Longueville, to whom he had been long attached, that the duke de Rochefoucault engaged in the civil wars, in which he signalized himself particularly at the battle of St Antoine. Beholding one day a portrait of this lady, he wrote underneath it these two lines from the tragedy of Alcyonée:

*“ Pour meriter son cœur, pour plaire à ses beaux yeux,
“ J’ai fait la guerre aux rois, je l’aurois fait aux deux.”*

Which may be thus rendered in English:

*“ To gain her heart, and please her sparkling eyes,
“ I’ve war’d with kings, and would have brav’d the skies.”*

It is reported, that after his rupture with Madame Longueville, he parodied the above verses thus:

*“ Pour ce cœur inconstant, qu’enfin je connois mieux,
“ Je fais la guerre aux rois, j’en ai perdu les yeux.”*

After the civil wars were ended, he thought of nothing but enjoying the calm pleasures of friendship and literature. His house became the rendezvous of every person of genius in Paris and Versailles. Racine, Boileau, Savigne, and La Fayette, found in his conversation charms which they sought for in vain elsewhere. He was not, however, with all his elegance and genius, a member of the French Academy. The necessity of making a public speech the day of his reception was the only cause that he did not claim admittance. This nobleman, with all the courage he had displayed upon various critical occasions, and with his superiority of birth and understanding over the common run of men, did not think himself capable of facing an audience, to utter only four lines in public, without being out of countenance. He died at Paris in 1680, aged 68,

leaving behind him a character which has been variously drawn by those who during his life were proud of his friendship. That he was well acquainted with human nature is certain; and his merit in that respect was fully admitted by Swift, who was himself not easily imposed upon by the artificial disguises of the hypocrite.

ROCHELLE, a celebrated city of France, capital of the territory of Aunis, with a very commodious and safe harbour, which, though it does not admit vessels of any considerable burden, is yet well calculated for trade. “ It may be divided (says Mr Wraxal) into three parts; the bason, which is the innermost of these, is only a quarter of a mile in circumference; and at the entrance are two very noble Gothic towers, called the Tower de St Nicholas, and the Tour de la Chaine. They are now in a state of decay, but were anciently designed to protect the town and harbour. Without these towers is the Avant Port, extending more than a league, and bounded by two points of land to the north and south. Beyond all is the road where the largest ships usually anchor, protected from the south-west winds by the islands of Re, Oleron, and Aix.” The celebrated mound erected by Richlieu extends from side to side across the whole harbour, nearly an English mile in length, and when the sea retires is still visible. “ I walked out upon it (says Mr Wraxal) above 300 feet. Its breadth is at this time more than 150 feet, and it widens continually towards the base. No effort of art or power can possibly impress the mind with so vast and sublime an idea of the genius of Richlieu, as does this bulwark against the sea. While I stood upon it, in the middle of the port, between the waves which rolled on either side, and contemplated its extent and strength, I was almost inclined to suppose this astonishing work to be superior to human power, and the production rather of a deity than of a mortal. A small opening of about 200 feet was left by Pompey Targon, the architect who constructed it, to give entrance to vessels, and shut up by chains fixed across it. A tower was likewise erected at each end, no remains of which are now to be seen. Neither the duke of Buckingham, nor the earl of Lindsey, who were successively sent from England to the aid of the besieged by Charles the First, dared to attack this formidable barrier: they retired, and left Rochelle to its fate. In all probability, a thousand years, aided by storms and all the fury of the sea, will make little or no impression on this mound, which is designed to endure as long as the fame of the Cardinal; its author.”

Before the revolution, Rochelle was a bishop’s see, and contained a college of humanities, an academy, a school for medicine, anatomy, and botany, and a mint. It cannot lay claim to any remote antiquity, being merely a little collection of houses on the shore, inhabited by fishermen, when William IX. last count of Poitou, rendered himself master of it in 1139. From this Prince it descended to his only daughter Eleanor, afterwards queen of Henry II. of England; and her charter incorporating the town is still preserved in the registers of the city. In the year 1540, Rochelle was the grand asylum of the Protestants; and the massacre at Paris was soon followed by the siege of Rochelle, which began in November 1572, and was raised in June 1573; but in 1628, after a most obstinate resistance, and a siege of 13 months, it surrendered to the

Rocheſter. the mercy of Louis XIII. At the beginning of the firſt ſiege, the number of inhabitants in the city amounted to 72,000; in the ſecond they diminifhed to 28,000; and they were, when Mr Wraxal was there, between 17 and 18,000, of which ſcarce 2000 were Huguenots. The houſes of this city are fine, and ſupported with piazzas, under which perſons may walk in all weathers; and the ſtreets in general are as ſtraight as a line. There are ſeveral handſome churches, and other ſtructures, beſides a remarkable pump in the ſquare of Dauphiny, which throws out the water through ſeveral pipes. There are no remains of the old fortifications, except on the ſide of the harbour, where there are bulwarks and ſtrong towers to defend the entrance. The new fortifications are in the manner of Vauban. Before Canada was ceded to England, and New Orleans to Spain, the trade of Rocheſter was very lucrative. It revived about the year 1773, and, beſide that to the coaſt of Guinea and the Eaſt Indies, the inhabitants carried on a conſiderable trade in wines, brandy, ſalt, paper, linen cloth, and ſerge. It is ſeated on the ocean, in W. Long. 1. 11. N. Lat. 46. 10.

ROCHESTER, a city of Kent, in England, is ſituated on the Medway, ſeven miles and a half north of Maidſtone, and 30 from London. It appears to have been one of the Roman ſtations, from the bricks in the walls, as well as the Roman coins that have been found about it. It has three pariſh churches built with ſtone and flints, beſides the cathedral, which is but a mean ſtructure. This little city, which was made a biſhop's ſee by king Ethelbert, anno 604, has met with many miſfortunes. In 676, it was ſacked by Eldred king of Mercia; in 839 and 885, beſieged by the Danes, but reſcued by king Alfred. About 100 years after, it was beſieged by king Ethelred, and forced to pay L. 100. Anno 999 it was taken and plundered by the Danes. Anno 1088 it was beſieged and taken by William Rufus. In king John's time it was taken from the Barons, after three month's ſiege; and the very next year, viz. 1256, its caſtle, founded by William the Conqueror, was ſtormed and taken by ſeveral of the Barons, under the French king's ſon. In the reign of Henry III. it was beſieged by Simon Montford, who burnt its then wooden bridge and tower, and ſpoiled the church and priory, and then marched off. This city has alſo been ſeveral times deſtroyed by fire, viz. in 1130, on June 3. in 1137, and in 1177; after which it is ſaid to have continued deſolate till 1225, when it was repaired, ditched, and walled round. In the Saxon heptarchy there were three mints in Rocheſter, two for the king and one for the biſhop. In 1281, its old wooden bridge was carried off by the ice, in a ſudden thaw after a froſt which had made the Medway paſſable on foot. Another was built in the reign of Richard II. but pulled down again, on the rumour of an invaſion from France. It was afterwards reſtored, but ſo often ſubject to expensive repairs, by reaſon of the rapid courſe of the river under it, as well as the great breadth and depth of it, that in the reign of Edward III. it was reſolved to build a new bridge of ſtone; and the ſame was begun, and in a manner completed, at the expence of Sir John Cobham and Sir Robert Knolles, Edward III.'s generals, out of the ſpoils they had taken in France. It has 21 arches. The town is governed by a mayor, recorder, 12 aldermen, 12

common-councilmen, a town-clerk, three ſerjeants at mace, and a water-bailiff. To its cathedral belong a dean and fix prebendaries. Gundulph's tower ſtands on the north ſide of the cathedral, and is ſuppoſed to have been built by the biſhop, as a place of ſecurity for the treaſures and archives of that church and ſee. Some ſuppoſe it to have been intended for a bell tower, and others for an eccleſiaſtical priſon; but whatever might be its deſtination, its machicolations, its loop-hole windows, and the thickneſs of its walls, ſhows ſtrength and defence were conſidered as neceſſary. This tower was 60 feet high, but ſome part has lately fallen down; the walls are fix feet thick, and contain within them an area of 20 feet ſquare: it was divided into five floors or ſtories of unequal height, and had a communication with the upper part of the church, by means of an arch or bridge, the ſteps of which are ſtill viſible. It is ſuppoſed to have been erected after the cathedral was built. For the maintenance of its bridge, certain lands are tied down by parliament, to which it has ſent members from the firſt. The town-houſe, built in the year 1687, for the courts, aſſizes, and ſeſſions, and the charity-ſchool, are two of the beſt public buildings here.—A mathematical ſchool was founded here, and an alms-houſe for lodging fix poor travellers every night, and allowing them 4 d. in the morning when they depart, except perſons contagioſly diſeaſed, rogues, and proctors. In the ſummer here are always fix or eight lodgers, who are admitted by tickets from the mayor. The Roman Watling-ſtreet runs through this town from Shooters-Hill to Dover. The mayor and citizens hold what is called an admiralty-court once a-year for regulating the oyster-fiſhery in the creeks and branches of the Medway that are within their jurisdiction, and for proſecuting the cable-hangers, as they are called, who dredge and fiſh for oysters without being free, by having ſerved ſeven years apprenticeship to a fiſherman who is free of the fiſhery. Every licenſed dredger pays 6s. 8d. a-year to the ſupport of the courts, and the fiſhery is now in a flouriſhing way. Part of the caſtle is kept in repair, and is uſed as a magazine, where a party of ſoldiers do conſtant duty. The bridge was repaired in 1744, and palſadoed with new iron rails. Rocheſter contains about 700 houſes, and 2000 inhabitants. It conſiſts of only one principal ſtreet, which is wide, and paved with flints. The houſes are generally well built with brick, and inhabited by tradesmen and inn-keepers. It has alſo four narrow ſtreets; but no ſort of manufactory is carried on here. Stroud is at the weſt end of this place, and Chatham at the eaſt. It is 27 miles north-weſt by weſt of Canterbury, and 30 ſouth-eaſt by eaſt of London. Long. 0. 36. E. Lat. 51. 23. N.

ROCHESTER (earl of). See WILMOT.

ROCK, a large maſs or block of hard ſtone rooted in the ground. See MOUNTAIN, PETRIFICATION, and STONE.

Rock, in ornithology, a ſpecies of VULTURE.

Rock Baſons are cavities or artificial baſons of different ſizes, from fix feet to a few inches diameter, cut in the ſurface of the rocks for the purpoſe, as is ſuppoſed, of collecting the dew and rain pure as it deſcended from the heavens, for the uſe of ablutions and purifications, preſcribed in the druidical religion; theſe, eſpecially the dew, being deemed the pureſt of all fluids.

Rock,
Rocket.

fluids. There are two sorts of these basons, one with lips or communications between the different basons, the other simple cavities. The lips as low as the bottom of the basons, which are horizontal, and communicate with one somewhat lower, so contrived that the contents fell by a gradual descent through a succession of basons either to the ground, or into a vessel set to receive it. The basons without lips might be intended for reservoirs to preserve the rain or dew in its original purity without touching any other vessel, and was perhaps used for the druid to drink, or wash his hands, previous to officiating at any high ceremony, or else to mix with their misetoe.

Some of these basons are so formed as to receive the head and part of the human body; one of this kind is found on a rock called king Arthur's bed, in the parish of North Hall in Cornwall, where are also others, called by the country people Arthur's troughs, in which they say he used to feed his dogs.

Rock-Crystal, in natural history, otherwise called *spring-crystal*, a name given to the third order of crystals, from their being applied to a rock or other solid body. See CRYSTAL.

Rock-Salt. See SALT.

Rock-Oil. See PETROLEUM.

Rock-Fish. See GOBIUS.

ROCKET, an artificial fire-work, consisting of a cylindrical case of paper, filled with a composition of certain combustible ingredients; which, being tied to a stick, mounts into the air, and then bursts. See PYROTECHNY.

Theory of the Flight of Sky-ROCKETS. Mariotte takes the rise of rockets to be owing to the impulse or resistance of the air against the flame. Dr Desagulier accounts for it otherwise.

Conceive the rocket to have no vent at the choak, and to be set on fire in the conical bore; the consequence will be, either that the rocket would burst in the weakest place, or, if all its parts were equally strong, and able to sustain the impulse of the flame, the rocket would burn out immoveable. Now, as the force of the flame is equable, suppose its action downwards, or that upwards, sufficient to lift 40 pounds. As these forces are equal, but their directions contrary, they will destroy each other's action.

Imagine then the rocket opened at the choak; by this means the action of the flame downwards is taken away, and there remains a force equal to 40 pounds acting upwards, to carry up the rocket, and the stick it is tied to. Accordingly, we find that if the composition of the rocket be very weak, so as not to give an impulse greater than the weight of the rocket and stick, it does not rise at all; or if the composition be slow, so that a small part of it only kindles at first, the rocket will not rise.

The stick serves to keep it perpendicular; for if the rocket should begin to stumble, moving round a point in the choak, as being the common centre of gravity of rocket and stick, there would be so much friction against the air by the stick between the centre and the point, and the point would beat against the air with so much velocity, that the friction of the medium would restore it to its perpendicularity.

When the composition is burnt out, and the impulse upwards is ceased, the common centre of gravity is

brought lower towards the middle of the stick; by which means the velocity of the point of the stick is decreased, and that of the point of the rocket increased; so that the whole will tumble down, with the rocket-end foremost.

All the while the rocket burns, the common centre of gravity is shifting and getting downwards, and still the faster and the lower as the stick is the lighter, so that it sometimes begins to tumble before it be burnt out; but when the stick is a little too heavy, the weight of the rocket bearing a less proportion to that of the stick, the common centre of gravity will not get so low but that the rocket will rise straight, though not so fast.

ROCKET, in botany. See BRASSICA.

ROCKINGHAM, a town in Northamptonshire, in England, 87 miles from London, stands on the river Welland. It has a charity-school, a market on Thursday, and a fair on Sept. 8. for five days. Its forest was reckoned one of the largest and richest of the kingdom, in which William the Conqueror built a castle; it extended, in the time of the ancient Britons, almost from the Welland to the Nen, and was noted formerly for iron-works, great quantities of flags, i. e. the refuse of the iron-ore, being met with in the adjacent fields. It extended, according to a survey in 1641, near 14 miles in length, from the west end of Middleton-Woods to the town of Mansford, and five miles in breadth, from Brigstock to the Welland; but is now dismembered into parcels, by the interposition of fields and towns, and is divided into three bailiwicks. In several of its woods a great quantity of charcoal is made of the tops of trees, of which many waggon-loads are sent every year to Peterborough. There is a spacious plain in it called Rockinghamshire, which is a common to the four towns of Cottingham, Rockingham, Corby, and Gretton. King William Rufus called the council here of the great men of the kingdom. W. Long. o. 46. N. Lat. 52. 32.

ROCKING-STONES. See *Rocking-STONES*.

ROCKOMBOLE. See ALLIUM.

ROD, a land measure of 16 feet and a half; the same with perch and pole.

Black Rod. See *USHER of the Black Rod*.

Fishing-Rod, a long taper rod or wand, to which the line is fastened for angling. See *FISHING-Rod*.

RODNEY (George Bridges), Lord Rodney, was born in the year 1718. Of the place of his birth and the rank of his ancestors we have not been able to procure any well authenticated account. His father was a naval officer; and commanding, at the time of his son's birth, the yacht in which the king, attended by the Duke of Chandos, was passing to or from Hanover, he asked and obtained leave to have the honour of calling his infant son *George Bridges*. The royal and noble godfathers advised Captain Rodney to educate his boy for his own profession, promising, as we have been told, to promote him as rapidly as the merit he should display and the regulations of the navy would permit.

Of young Rodney's early exertions in the service of his country, nothing, however, is known to the writer of this abstract, nor, indeed, any thing of sufficient importance to be inserted in articles so circumscribed as all our biographical sketches must be, till 1751, when we find him, in the rank of a Commodore, sent out to make

ney. make accurate discoveries respecting an island which was supposed to lie about 50° N. L. and about 300 leagues W. of England: but he returned without having seen any such island as that which he was appointed to survey. In the war which soon followed this voyage of discovery, he was promoted to the rank of a rear-admiral, and was employed to bombard Havre-de-Grace; which in 1759 and 1760 he considerably damaged, together with some shipping. In 1761 he was sent on an expedition against Martinico, which was reduced in the beginning of the year 1762, and about the same time St Lucia surrendered to Captain Harvey. Both these islands were restored to the French at the peace of 1763.

In reward for his services, he was created a knight of the Bath; but being inattentive, as many seamen are, to the rules of economy, his circumstances became so embarrassed that he was obliged to fly from his country, with very slight hopes of ever being able to return. He was in France when the ill-advised policy of that court made them take a decided part with America against Great Britain; and it is said that some men in power, no strangers to the desperate state of Sir George's affairs, offered him a high command in the French navy, if he would carry arms against his own country. This offer he rejected with becoming indignation. Soon after this gallant behaviour, the Duke de Chartres, afterwards the infamous Orleans, told Sir George that he was to have a command in the fleet which was to be opposed to that under the command of his countryman Mr Keppel; and with an insulting air asked him what he thought would be the consequence of their meeting? "That my countryman will carry your Highness with him to learn English," was the high-spirited reply.—When the divisions, which the mutual recriminations of Admiral Keppel and Sir Hugh Palliser excited in the British navy, made it difficult for the ministry to procure experienced, and at the same time popular, commanders for their fleets, Lord Sandwich wrote to Sir George Bridges Rodney, offering him a principal command; but the difficulty was for the veteran to find money to pay his accounts in France, so that he might be permitted to leave that kingdom. The money, it has been repeatedly affirmed, was advanced to him by the courtiers whose offer he had before indignantly rejected. He arrived, therefore, in England, and was again employed in the service of his country. His first exploit after his appointment was in January 1780, when he took 19 Spanish transports bound to Cadiz from Bilbao; together with a 64 gun ship and 5 frigates, their convoy. On the 16th of the same month he fell in with the Spanish fleet, consisting of 11 sail of the line, under the command of Don Juan de Langara; of which one was blown up during the engagement, five were taken and carried into Gibraltar, among which was the admiral's ship, and the rest were much shattered. In April the same year, he fell in with the French fleet, under the command of Admiral Guichen, at Martinico, whom he obliged to fight, and whom he completely beat; though from the shattered state of his own fleet, and the unwillingness of the enemy to risk another action, he took none of their ships. The successful efforts of our gallant admiral during the year 1780 were generally applauded through the nation. He received the thanks of both Houses of Parliament, and addresses of thanks from

various parts of Great Britain, and the islands to which his victories were more particularly serviceable. In December the same year, he made an attempt, together with General Vaughan, on St Vincent's, but failed. In 1781, he continued his exertions, with much success, in defending the West India islands; and, along with the above named general, he conquered St Eustatius; on which occasion his conduct to the inhabitants has been much, though perhaps unjustly, censured. The island was certainly a nest of contraband traders.

On the 12th of April 1782, he came to a close action with the French fleet under Count de Grasse; during which he sunk one ship and took five, of which the admiral's ship, the *Ville de Paris*, was one. The following year brought peace; but, as a reward for his numerous services, he had a grant of L. 2000 a-year for himself and his two successors. He had long before been created a baronet, was rear-admiral of Great Britain, and at length was justly promoted to the peerage, by the title of Baron Rodney of Stoke, Somersetshire, and made vice-admiral of Great Britain. He was once also governor of Greenwich Hospital.

Lord Rodney had been twice married; first to the sister of the Earl of Northampton, and secondly to the daughter of John Clies, Esq; with whom he did not reside for several years before his death, which happened on the 24th of May 1792. He was succeeded in title and estates by his son George, who married in 1781 Martha, daughter of the Right Hon. Alderman Harley, by whom he has issue.

Of the private life of Lord Rodney we know but little. His attention to the wants of the seamen, and the warrant officers serving under him, indicated that humanity which is always allied to true courage. He has often, from the number of dishes which his rank brought to his table, selected something very plain for himself, and sent the rest to the midshipmen's mess.—His public transactions will transmit his name with honour to posterity; his bravery was unquestionable, and his success has been seldom equalled. It has, indeed, been very generally said, that his skill in naval tactics was not great, and that he was indebted to the superior abilities of Capt. Young and Sir Charles Douglas for the manœuvres by which he was so successful against Langara and De Grasse. But, supposing this to be true, it detracts not from his merit. A weak or foolish commander could not always make choice of the ablest officers for his first captains, nor would such a man be guided by their advice.

Whatever was Lord Rodney's skill in the science of naval war, or however much he may have been beholden to the counsels of others, he certainly possessed himself the distinguished merit of indefatigable exertion; for he never omitted any thing within the compass of his power to bring the enemy to action. He therefore unquestionably deserves the respect and the gratitude of his country. In the year 1783 the House of Assembly in Jamaica voted L. 1000 towards erecting a marble statue to him, as a mark of their gratitude and veneration for his gallant services, so timely and gloriously performed for the salvation of that island in particular, as well as the whole of the British West India islands and trade in general. We have not, however, heard of any such tribute being paid to him in Britain either before or since his death.

Rodney.

ROE,

Rec
||
Rohan.

ROE, the seed or spawn of fish. That of the male fishes is usually distinguished by the name of *soft roe*, or *milt*; and that of the female, *hard roe*, or *spawn*. So inconceivably numerous are these ovula or small eggs, that M. Petit found 342,144 of them in a carp of 18 inches; but M. Lieuwenhoek found in a carp no more than 211,629. This last gentleman observes, that there are four times this number in a cod; and that a common one contains 9,344,000 eggs.

ROE, in zoology. See **CERVUS**.

ROELLIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 29th order, *Campanaceæ*. The corolla is funnel-shaped, with its bottom shut up by stamiferous valvules; the stigma is bifid; the capsule bilocular, and cylindrical inferior.

ROGA, in antiquity, a present which the emperors made to the senators, magistrates, and even to the people; and the popes and patriarchs to their clergy. These rogæ were distributed by the emperors on the first day of the year, on their birth-day, or on the *natalis dies* of the cities; and by the popes and patriarchs in passion-week. Roga is also used for the common pay of the soldiers.

ROGATION (**ROGATIO**), in the Roman jurisprudence, a demand made by the consuls or tribunes of the Roman people, when a law was proposed to be passed. *Rogatio* is also used for the decree itself made in consequence of the people's giving their assent to this demand; to distinguish it from a *senatus consultum*, or decree of the senate.

ROGATION-Week, the week immediately succeeding Whitsunday; so called from the three feasts therein, viz. on Monday, Tuesday, and Wednesday.

ROGER DE HOWDEN, a learned man of the 13th century, was born in Yorkshire, most probably at the town of that name, now called *Howden*, some time in the reign of Henry I. After he had received the first parts of education in his native country, he studied the civil and canon law, which were then become the most fashionable and lucrative branches of learning. He became domestic chaplain to Henry II. who employed him to transact several ecclesiastical affairs; in which he acquitted himself with honour. But his most meritorious work was, his *Annals of England*, from A. D. 731, when Bede's Ecclesiastical History ends, to A. D. 1202. This work, which is one of the most voluminous of our ancient histories, is more valuable for the sincerity with which it is written, and the great variety of facts which it contains, than for the beauty of its style, or the regularity of its arrangement.

ROGUE, in law, an idle sturdy beggar; who by ancient statutes is for the first offence called a *rogue of the first degree*, and punished by whipping, and boring through the gristle of the right ear with a hot iron; and for the second offence, is termed a *rogue of the second degree*, and, if above 18 years of age, ordered to be executed as a felon.

ROHAN (Peter de), Chevalier de Gié, and marshal of France, better known by the name of *Marshal de Gié*, was the son of Louis de Rohan, the first of the name, lord of Guémené and Montauban, and descended of one of the most ancient and most illustrious families of the kingdom. The family of Rohan, before the Revolution, held the rank of prince in France

in consequence of deriving its origin from the first sovereigns of Brittany, and clearly admitted by the dukes of Brittany themselves in the states general of that province held in 1088. The house of Rohan had still another advantage, which was common to it with very few families, even the most distinguished among the princes, namely, that instead of having been aggrandized by the wealth procured from alliances, it had held in itself for seven centuries the largest possessions of any family in the kingdom.

One of the most distinguished branches of this family was Peter, the subject of the present article. Louis XI. rewarded his bravery with the staff of marshal of France in 1475. He was one of the four lords who governed the kingdom during the indisposition of that prince at Chinon in 1484. Two years afterwards he opposed the attacks of the archduke of Austria upon Picardy. He commanded the van-guard at the battle of Fornoue in 1495, and signalized himself much in that engagement. His bravery procured him the countenance and confidence of Louis XII. who appointed him his prime counsellor, and general of the army in Italy; but these advantages he lost, by incurring the displeasure of Anne of Brittany the queen.

The marshal had stopped some of her equipage on the road to Nantz; for which that vindictive princess prevailed on her husband to enter into a process against him before the parliament of Toulouse, at that time the most rigorous and severe in the kingdom. He was on the 15th of February 1506 found guilty, banished from the court, and deprived of the privileges and emoluments of his office for five years. The expence of this prosecution amounted to more than 31,000 livres, and it did no honour either to the king or the queen. If indeed it be true, that the queen was never so much delighted as with the humiliation of her enemies, she had good reason to be satisfied here. John of Authon, who hath entered into a pretty full detail of this affair, reports that Gié, being removed to the *Chateau de Dreux*, became an object of ridicule to the witnesses who had sworn against him. He wore a long white beard, and, quite full of the thoughts of his disgrace, took it on one occasion in his hands and covered his face with it. An ape, belonging to Alain d'Albret, count of Dreux, jumped from a bed where his master was reposing himself, and attacked the beard of Gié, who, with some difficulty, extricated himself. This scene not only occasioned much laughter to the whole company who were present, but likewise became instantly the subject of the farces and mummeries which were then acting in France. Even the school-boys made a representation of it, where, alluding to the name of the queen, they said, that there was a marshal who wished to shoe an ass (*un âne*), but that he received such a blow with the foot, as threw him over the wall into the garden. Mareschal de Gié died at Paris, the 22d April 1513, perfectly disgusted with courts and grandeur.

ROHAN (Henry duke of), peer of France, and prince of Leon, was born at the Chateau de Blein in Brittany in 1579. Henry IV. under whose eyes he gave distinguished proofs of his bravery at the siege of Amiens, when only 16 years of age, loved him with as much affection as if he had been his own son. After the death of Henry, he became chief of the Calvinists in

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in France; and was equally formidable for his genius as his sword. In defence of the civil and religious rights of his party, he maintained three wars against Louis XIII. The first, which terminated to the advantage of the Protestants, broke out when that prince wished to establish the Romish religion in Le Bearn: the second, because of the siege which Cardinal De Richlieu caused to be laid to Rochelle: and the third, when that place was besieged a second time. The consequences of this war are sufficiently known: Rochelle surrendered: and the duke de Rohan perceiving, that after the taking of this place, the majority of his party were endeavouring to make up matters with the court, succeeded in procuring for them a general peace in 1629, upon very honourable and advantageous terms. The only sacrifice of importance which the Huguenots were obliged to make, was their fortifications; which put it out of their power to renew the war. Some factious persons, dissatisfied with seeing their fortresses fall into their enemies hands, were ready to accuse their general of having sold them. This great man, undeserving of such odious ingratitude, presented his breast to these enraged malcontents, and said, "Strike, strike! I wish to die by your hands, after I have hazarded my life in your service." The peace of 1629 having extinguished the flame of civil war, the duke de Rohan, no longer of use to his party, and become disagreeable at court, retired to Venice. There is a very particular anecdote of him, extracted from the Memoirs of the duchess of Rohan, Margaret of Bethune, daughter of the famous Sully. Whilst the duke de Rohan was at Venice, a proposal was made to him from the Porte, that for 200,000 crowns, and an annual tribute of 20,000, the Grand Signior would give him the island of Cyprus, and fully invest him with the dignity and prerogatives of king. The duke was warmly inclined to comply with this proposal, and to settle in the island the Protestant families of France and Germany. He negotiated this business at the Porte by means of the intervention of the patriarch Cyril, with whom he had much correspondence; but different circumstances, and in particular the death of the patriarch, occurred to break off the treaty. The republic of Venice chose Rohan for their commander in chief against the Imperialists; but Louis XIII. took him from the Venetians, and sent him ambassador into Switzerland, and into the Grisons. He wished to assist these people in bringing back La Valteline under their obedience, the revolt of which the Spaniards and Imperialists encouraged. Rohan, being declared general of the Grisons, after many victories, drove the German and Spanish troops entirely from La Valteline in 1633. He defeated the Spaniards again in 1636 at the banks of the lake of Côme. France, not thinking it proper to withdraw her troops, the Grisons rose up in arms, and the duke de Rohan, not satisfied with the conduct of the court, entered into a special treaty with them the 28th March 1637. This hero, fearing the resentment of cardinal de Richlieu, retired to Geneva, with a view to join his friend the duke of Saxe-Weimar, who wished him to undertake the command of his army, then ready to engage the Imperialists near Rhinfield. Although he declined this honour, yet he took the command of the regiment of Nassau, with which he threw the enemy into confusion; but was himself wounded, February 28. 1683,

and died of his wounds the 13th of April following, at the age of 59. He was interred May 27th, in the church of St Pierre in Geneva, where there is a magnificent monument of marble erected to his memory, having on it the most illustrious actions of his life. The duke de Rohan was one of the greatest generals of his time, equal to the princes of Orange, and capable, like them, of settling a commonwealth; but more zealous than they for religion, or at least appearing to be so. He was vigilant and indefatigable, not allowing himself any pleasures which might take off his attention from his necessary employments, and well qualified for being the head of a party; a post very difficult to retain, and in which he had to fear equally from his enemies and his friends. It is in this light that Voltaire has viewed this illustrious character, when he composed the following verse:

Avec tous les talens le Ciel l'avoit fait naître :

Il agit en Heros ; en Sage il écrivit.

*Il fut même grand homme en combattant son Maître,
Et plus grand lorsqu'il le servoit.*

His military virtues were much heightened by the sweetness of his disposition, his affable and courteous manners, and by a generosity which had few examples. Neither ambition, pride, nor a view of gain, could ever be traced in his character. He was wont to say, that "true glory and a zeal for the public good never dwelt where self-interest reigned." Rohan had always a particular regard for Henry the Fourth: "Truly (said he, sometimes after the death of that prince) when I think of him, my heart is ready to break. A wound received in his presence would have afforded me more satisfaction than now to gain a battle. I would have valued an encomium from him in this art, of which he was the greatest master of his time, more than than the united praises of all the commanders now living." He wrote several interesting performances: 1. The Interests of Princes, printed at Cologne in 1666, in 12mo: in which work he fully examines the public interests of all the princes of Europe. 2. The Perfect General, or an abridgement of the wars from Cæsar's Commentaries, in 12mo. In this he makes it appear, that a knowledge of the tactics of the ancients might be of much use to the moderns. 3. A Treatise on the Corruption of the ancient Militia. 4. A Treatise on the Government of the Thirteen Provinces. 5. Memoirs; the best edition of which is in 2 vols 12mo. They contain the history of France from 1610 to 1629. 6. A Collection of some Political Discourses on State Affairs, from 1612 to 1629, 8vo, Paris, 1644, 1693, 1755; with the Memoirs and Letters of Henry Duke de Rohan relative to the war of La Valteline, 3 vols 12mo, Geneva, 1757. This was the first edition which appeared of these curious memoirs: We owe it to the great attention and diligence of M. le Baron de Zurlauben, who published them from different authentic manuscripts. He likewise ornamented this edition with geographical, historical, and genealogical notes, and a preface, which contains an abridged, but highly interesting life, of the duke de Rohan, author of the memoirs. The abbé Pérau has also written a life of him, which occupies the 21st and 22d volumes of the History of the Illustrious Men of France. Some want of spirit might be excused in the detail of wars finished upwards of 140

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years ago; yet the memoirs of the duke de Rohan still afford considerable pleasure in the perusal. He tells his story with humour, with sufficient exactness, and in such a style as procures the confidence of the reader.

ROHAULT (James), a celebrated Cartesian philosopher, was the son of a merchant of Amiens, where he was born in 1620. He became well skilled in the mathematics, and taught them at Paris, where he became acquainted with M. Clerfelier, an advocate, who gave him his daughter in marriage. Rohault also taught philosophy in the same city with uncommon applause. He there improved the arts, and gave excellent lectures to the artists and workmen. He died at Paris in 1675. He wrote, in French, 1. A Treatise on Natural Philosophy. 2. The Elements of the Mathematics. 3. A Treatise on Mechanics, which is very curious. 4. Philosophical Conversations; and other works. His Physics have been translated into Latin, by Dr Samuel Clarke, with notes, in which the Cartesian errors are corrected upon the Newtonian system.

ROLANDRA, in botany: A genus of the polygamia segregata order, belonging to the syngenesia class of plants; and in the natural method ranking under the 49th order, *Compositæ*. The common calyx consists of distinct *foveoli*, between each of which are short *squamæ*, the whole forming a round head. The partial calyx is bivalved. The corolla is small and funnel-shaped, the tube small as a thread, the *laciniæ* short and acute. The stamina are five; the style bifid. It has no other seed vessel except the partial calyx, which contains a long three-sided seed. Of this there is only one species, viz. the *Argentea*; a native of the West Indies, and found in coples and waste lands.

ROLL, in manufactories, something wound and folded up in a cylindrical form.

Few stuffs are made up in rolls, except satins, gawses, and crapes; which are apt to break, and take plaits not easy to be got out, if folded otherwise. Ribbons, laces, gallons, and paduas of all kinds, are also thus rolled.

A roll of tobacco, is tobacco in the leaf, twisted on the mill, and wound twist over twist about a stick or roller. A great deal of tobacco is sold in America in rolls of various weights; and it is not till its arrival in England, Spain, France, and Holland, that it is cut.

A roll of parchment, properly denotes the quantity of 60 skins.

The ancients made all their books up in the form of rolls; and in Cicero's time the libraries consisted wholly of such rolls.

ROLL, in law, signifies a schedule or parchment which may be rolled up by the hand into the form of a pipe.

In these schedules of parchment, all the pleadings, memorials, and acts of court, are entered and filed by the proper officer; which being done, they become records of the court. Of these there are in the exchequer several kinds, as the great wardrobe roll, the cofferer's roll, the subsidy-roll, &c.

Roll is also used for a list of the names of persons of the same condition, or of those who have entered into the same engagement. Thus a court-roll of a manor, is that in which the names, rents, and services, of each tenant are copied and enrolled.

Calves-head Roll, a roll in the two temples, in which every bench is taxed yearly at 2 s. every barrister at 1 s. 6 d. and every gentleman under the bar at 1 s. to the cook and other officers of the house, in consideration of a dinner of calves-heads provided in Easter-term.

Mustel-Roll, that in which are entered the soldiers of every troop, company, regiment, &c. As soon as a soldier's name is written down on the roll, it is death for him to desert.

Rolls-Office, is an office in Chancery-lane, London, appointed for the custody of the rolls and records in chancery.

Master of the Rolls. See *MASTER of the Rolls*.

Rider-Roll, a schedule of parchment frequently sewed or added to some part of a roll or record.

Rolls of Parliament, are the manuscript registers or rolls of the proceedings of our ancient parliaments, which before the invention of printing were all engrossed on parchment, and proclaimed openly in every county. In these rolls are also contained a great many decisions of difficult points of law, which were frequently in former times referred to the decision of that high court.

ROLL, or *Roller*, is also a piece of wood, iron, brass, &c. of a cylindrical form, used in the construction of several machines, and in several works and manufactures.

Thus in the glass manufacture they have a running-roll, which is a thick cylinder of cast brass, which serves to conduct the melted glass to the end of the table on which large looking-glasses, &c. are cast.

Founders also use a roll to work the sand which they use in making their moulds.

The presses called *calendars*, as serving to calendar stuffs withal, consist, among other essential parts, of two rollers. It is also between the two rollers that the waves are given to silks, mohairs, and other stuffs proper to be tabbed.

Impressions from copper-plates are also taken by passing the plate and paper between two rollers. See *Rolling-press PRINTING*.

Rolls, in flatting-mills, &c. are two iron instruments of a cylindrical form, which serve to draw or stretch out plates of gold, silver, and other metals.

Rolls, in sugar-works, are two large iron barrels which serve to bruise the canes, and to express the juice. These are cast hollow, and their cavities are filled up with wood, the cylinders of which are properly the rollers.

ROLLER, in surgery, a long and broad bandage, usually of linen-cloth, rolled round any part of the body, to keep it in, or dispose it to a state of health.

ROLLI (Paul), was born at Rome in 1687. He was the son of an architect, and a pupil of the celebrated Gravina, who inspired him with a taste for learning and poetry. An intelligent and learned English lord having brought him to London, introduced him to the royal family as a master of the Tuscan language. Rolli remained in England till the death of queen Caroline his protector, and the patroness of literature in general. He returned to Italy in 1747, where he died in 1767, in the 80th year of his age, leaving behind him a very curious collection in natural history, &c. and a valuable and well chosen library. His principal works first appeared

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appeared in London in 1735, in 8vo. They consist of odes in blank verse, elegies, songs, and other things, after the manner of Catullus. There is likewise, by him, a Collection of Epigrams, printed at Florence in 1776, in 8vo, and preceded with his life by the abbé Fondini. What Martial said of his own Collection may be said of this, "That there are few good, but many indifferent or bad, pieces in it." Rolli, however, bore the character of one of the best Italian poets of his age. During his stay in London, he procured editions of several authors of his own country. The principal of these were, the *Satires* of Ariosto, the *Burlesque Works* of Berni, Varchi, &c. 2 vols, in 8vo, which possess considerable merit. The *Decameron* of Boccace, 1727, in 4to and folio; in which he has faithfully copied the celebrated and valuable edition published by the *Juntas* in 1527; and, lastly, of the elegant *Lucretia* of Marchetti, which, after the manuscript was revised, was printed at London in 1717, in 8vo, through the influence and attention of Rolli. This edition is beautiful; but the work is thought of pernicious tendency. There are likewise, by him, translations into Italian verse of the *Paradise Lost* of Milton, printed at London in 1735; and of the *Odes* of Anacreon, London 1739, in 8vo.

ROLLIN (Charles), a justly celebrated French writer, was the son of a cutler at Paris, and was born there on the 30th of January 1661. He studied at the college Du Pleffis, in which he obtained a bursary through the interest of a Benedictine monk of the White Mantle, whom he had served at table, and who discovered in him some marks of genius. Here he acquired the regard of M. Gobinet, principal of that college, who had a particular esteem for him. After having studied humanity and philosophy at the college of Du Pleffis, he applied to divinity three years at the Sorbonne; but he did not prosecute this study, and never rose in the church higher than to the rank of a tonsured priest. He afterwards became professor of rhetoric in the same college; and, in 1688, succeeded Horfan, his master, as professor of eloquence, in the royal college. No man ever exercised the functions of it with greater éclat: he often made Latin orations, to celebrate the memorable events of the times; and frequently accompanied them with poems, which were read and esteemed by every body. In 1694, he was chosen rector of the university; and continued in that office two years, which was then a great mark of distinction. By virtue of his office, he spoke the annual panegyric upon Louis XIV. He made many very useful regulations in the university; and particularly revived the study of the Greek language, which was then much neglected. He substituted academical exercises in the place of tragedies; and introduced the practice which had been formerly observed, of causing the students to get by heart passages of Scripture. He was a man of indefatigable attention; and trained innumerable persons, who did honour to the church, the state, and the army. The first president Portail was pleased one day to reproach Rollin in a jocular strain, as if he exceeded even himself in doing business: to whom Rollin replied, with that plainness and sincerity which was natural to him, "It becomes you well, Sir, to reproach me with this; it is this habit of labour in me which has distinguished you in the place of

advocate-general, which has raised you to that of first president: you owe the greatness of your fortune to me." Rollin.

Upon the expiration of the rectorship, cardinal Noailles engaged him to superintend the studies of his nephews, who were in the college of Laon; and in this office he was agreeably employed, when, in 1699, he was with great reluctance made coadjutor to the principal of the college of Beauvais. This college was then a kind of desert, inhabited by very few students, and without any manner of discipline: but Rollin's great reputation and industry soon re-peopled it, and made it that flourishing society it has ever since continued. In this situation he continued till 1712; when the war between the Jesuits and the Jansenists drawing towards a crisis, he fell a sacrifice to the prevalence of the former. Father le Tellier, the king's confessor, a furious agent of the Jesuits, infused into his master prejudices against Rollin, whose connections with cardinal de Noailles would alone have sufficed to have made him a Jansenist; and on this account he lost his share in the principality of Beauvais. No man, however, could have lost less in this than Rollin, who had every thing left him that was necessary to make him happy; retirement, books, and enough to live on. He now began to be employed upon Quinçtilian; an author he justly valued, and saw neglected not without uneasiness. He retrenched in him whatever he thought rather curious than useful for the instruction of youth; he placed summaries or contents at the head of each chapter; and he accompanied the text with short select notes. His edition appeared in 1715, in 2 vols 12mo, with an elegant preface, setting forth his method and views.

In 1710, the university of Paris, willing to have a head suitable to the importance of their interests in the then critical conjuncture of affairs, chose Rollin again rector: but he was displaced in about two months by a *lettre de cachet*. The university had presented to the parliament a petition, in which it protested against taking any part in the adjustment of the late disputes; and their being congratulated in a public oration by Rollin on this step, occasioned the letter which ordered them to choose a rector of more moderation. Whatever the university might suffer by the removal of Rollin, the public was probably a gainer; for he now applied himself to compose his treatise upon the Manner of Studying and Teaching the Belles Lettres, which was published, two volumes in 1726, and two more in 1728, 8vo.

This work has been justly esteemed for the sentiments of religion which animate its author, whose zeal for the public good prompted him to select the choicest passages of Greek and Latin authors. The style is sufficiently elegant, but the language on some occasions is not remarkable for delicacy; and in the book altogether there is neither much order nor depth. The author has indeed spoken of common things agreeably, and has spoken as an orator on subjects which demanded the investigation of the philosopher. One can scarcely reduce any thing in him to principles.—For example, the three species of eloquence; the simple, the temperate, and the sublime, can scarcely be understood from him when we read that the one resembles a frugal table; the second a beautiful ruin, with green wood growing

Rollin. on its banks; and the third thunder and an impetuous river which overthrows every thing that opposes it.

The work, however, has been exceedingly successful, and justly so; and its success encouraged its author to undertake another work of equal use and entertainment; his *Histoire Ancienne*, &c. or "Ancient History of the Egyptians, Carthaginians, Assyrians, Babylonians, Medes and Persians, Macedonians, and Greeks," which he finished in 13 vols 8vo. and published between 1730 and 1738. M. Voltaire, after having observed that Rollin was "the first member of the university of Paris who wrote French with dignity and correctness," says of this work, that "though the last volumes, which were written in too great a hurry, are not equal to the first, it is nevertheless the best compilation that has yet appeared in any language; because it is seldom that compilers are eloquent, and Rollin was remarkably so." This is perhaps saying too much. There are indeed in this work some passages very well handled; but they are only such as he had taken from the ancient authors, in doing justice to whom he was always very happy. The reader will easily discover in this work the same attachment to religion, the same desire for the public good, and the same love of virtue, which appears in that on the Belles Lettres. But it is to be lamented that his chronology is neither exact nor corresponding; that he states facts inaccurately; that he has not sufficiently examined the exaggerations of ancient historians; that he often interrupts the most solemn narrations with mere trifles; that his style is not uniform; and this want of uniformity arises from his borrowing from writers of a modern date 40 or 50 pages at a time. Nothing can be more noble and more refined than his reflections; but they are strewn with too sparing a hand, and want that lively and laconic turn on account of which the historians of antiquity are read with so much pleasure. He transgresses the rule which he himself had established in his *Treatise on Studies*. "The precepts which have a respect to manners (says he) ought, in order to make an impression, to be short and lively, and pointed like a dart. That is the most certain method of making them enter and remain on the mind." There is a visible negligence in his diction with regard to grammatical custom, and the choice of his expressions, which he does not choose at all times with sufficient taste, although, on the whole, he writes well, and has preserved himself free from many of the faults of modern authors. While the last volumes of his ancient history were printing, he published the first of his Roman History; which he lived to carry on, through the eighth and into part of the ninth, to the war against the Cimbri, about 70 years before the battle of Actium. Mr Crevier, the worthy disciple of Rollin, continued the history to the battle of Actium, which closes the tenth volume; and has since completed the original plan of Rollin in 16 vols 12mo, which was to bring it down from the foundation of the city to the reign of Constantine the Great. This history had not so great success as his Ancient History had. Indeed it is rather a moral and historical discourse than a formal history; for the author does little more than point out some more remarkable events, while he dwells with a sort of prolixity on those parts which furnish him a free field for moralizing. It is alternately diffuse and barren; and the greatest advantage of the work is, that there are several passages from T.

Livy translated with great elegance into French. He also published A Latin Translation of most of the Theological Writings relative to the disputes of the Times in which he lived. Rollin was one of the most zealous adherents of deacon Paris; and before the inclosure of the cemetery of St Medard, this distinguished character might have been often seen praying at the foot of his tomb. This he confesses in his Letters. He published also Lesser Pieces; containing different Letters, Latin Harangues, Discourses, Complimentary Addresses, &c. Paris 1771; 2 vols. 12mo. A collection which might have been contained in one volume, by keeping in only the best pieces. It is notwithstanding valuable for some good pieces which it contains, for the favourable opinion which it exhibits of solid probity, sound reason, and the zeal of the author for the progress of virtue and the preservation of taste. The Latin of Rollin is very correct, and much after the Ciceronian style, and embellished with most judicious thoughts and agreeable images. Full of the reading of the ancients, from which he brought quotations with as much propriety as plenty, he expressed himself with much spirit and excellence. His Latin poems deserve the same eulogium.

This excellent person died in 1741. He had been named by the king a member of the academy of inscriptions and belles lettres in 1701: but as he had not then brought the college of Beauvais into repute, and found he had more business upon his hands than was consistent with a decent attendance upon the functions of an academician, he begged the privileges of a veteran, which were honourably granted him. Nevertheless, he maintained his connections with the academy, attended their assemblies as often as he could, laid the plan of his ancient history before them, and demanded an academician for his censor. Rollin was a man of an admirable composition; very ingenious, consummate in polite learning, of rigid morals, and eminently pious. He was rather too religious; his religion carrying him into the territories of superstition; and he wanted nothing but a mixture of the philosophic in his nature to make him a very perfect character. Nothing could be more benign, more pacific, more sweet, more moderate, than Rollin's temper. He showed, it must be owned, some zeal for the cause of Jansenism; but in all other respects he was exceedingly moderate. The celebrated poet Rousseau conceived such a veneration for him, that he came out of banishment incognito to Paris, on purpose to visit him and pay his respects to him. He looked upon his histories, not only as the best models of the historic kind, but as a complete system of politics and morals, and a most instructive school for princes as well as subjects to learn all their duties in.

Instead of blushing at the lowness of his birth, Rollin on no occasion hesitated to speak of it. "It is from the Cyclops's shop (says he, in a Latin epigram to one of his friends, to whom he had sent a small sword) that I have taken my flight towards Parnassus." He was not, however, without some share of vanity, especially at hearing mention made of his writings, of which the well-timed praises of his adherents had given him a very high opinion. He spoke without any dissimulation what he thought; and his opinions were less the effect of presumption than of openness of heart. He was one of those men who are vain without any mixture of pride.

ing, pride. Rollo spoke pretty well; but he had a greater readiness of writing than speaking; and much more satisfaction might be derived from his works than from his conversation. His name became famous throughout Europe; several princes sought the honour of his friendship. The duke of Cumberland and the prince-royal of Prussia (afterwards king) were among the list of his admirers. This monarch honoured him with several letters; in one of which he pays him the following compliment, "Men of your character are fit companions for kings." As to the literary merit of this author, it was, we suspect, too much extolled in his own time, and has been too much undervalued in ours.

ROLLING, the motion by which a ship rocks from side to side like a cradle, occasioned by the agitation of the waves.

Rolling, therefore, is a sort of revolution about an imaginary axis passing through the centre of gravity of a ship: so that the nearer the centre of gravity is to the keel, the more violent will be the rolling motion; because the centre about which the vibrations are made is placed so low in the bottom, that the resistance made by the keel to the volume of water which it displaces in rolling, bears very little proportion to the force of the vibration above the centre of gravity, the radius of which extends as high as the mast-heads.

But if the centre of gravity is placed higher above the keel, the radius of vibration will not only be diminished, but an additional force to oppose the motion of rolling will be communicated to that part of the ship's bottom which is below the centre of gravity.

So far as relates to the effect of rolling, when produced by the quality or stowage of the ballast, and to the manner by which it may be prevented, viz. a change of the quantity or disposition of the ballast, we shall endeavour to explain under the article **TRIM**. It may, however, be necessary to remark, that the construction of the ship's bottom may also contribute to diminish this movement considerably.

Many fatal disasters have happened to ships arising from a violent rolling; as the loss of the masts, loosening of the cannon, and straining violently on the decks and sides, so as to weaken the ship to a great degree. See **PITCHING**.

ROLLING-Press. See **Rolling-Press**.

ROLLING-Tackle, a pulley or purchase fastened to that part of a sail-yard which is to the windward of the mast, in order to confine the yard close down to the leeward when the sail is furled.

It is used to prevent the yard from having a great friction against the mast in a high sea, which would be equally pernicious to both.

ROLLO, the conqueror of Normandy, was a Norwegian duke, banished from his country by Harold Harefoot, who conquered Norway in 870, on account of the piracies he exercised. He first retired with his fleet among the islands of the Hebrides to the north-west of Scotland, whither the flower of the Norwegian nobility had fled for refuge ever since Harold had become master of the whole kingdom. He was there received with open arms by those warriors, who, eager for conquest and revenge, waited only for a chief to undertake some glorious enterprise. Rollo settling himself at their head, and seeing his power formidable, sailed towards England, which had been long as it

were a field open on all sides to the violence of the northern nations. But the great Alfred had some years before established such order in his part of the island, that Rollo, after several fruitless attempts, despaired of forming there such a settlement as should make him amends for the loss of his own country. He pretended, therefore, to have had a supernatural dream, which promised him a glorious fortune in France, and which served at least to support the ardour of his followers. The weakness of the government in that kingdom, and the confusion in which it was involved, were still more persuasive reasons to insure them of success. Having therefore sailed up the Seine to Rouen, he immediately took that capital of the province, then called *Neustria*, and making it his magazine of arms, he advanced up to Paris, to which he laid siege in form. This war at length ended in the entire cession of *Neustria*, which Charles the Simple was obliged to give up to Rollo and his Normans in order to purchase a peace. Rollo received it in perpetuity to himself and his posterity, as a feudal duchy dependant on the crown of France. A description of the interview between Charles and this new duke gives us a curious picture of the manners of these Normans (as they were called by foreigners); for the latter would not take the oath of fealty to his sovereign lord any other way than by placing his hands within those of the king; and absolutely refused to kiss his feet, as custom then required. It was with great difficulty he was prevailed on to let one of his warriors perform this ceremony in his stead; but the officer to whom Rollo deputed this service, suddenly raised the king's foot so high, that he overturned him on his back; a piece of rudeness which was only laughed at: to such a degree were the Normans feared, and Charles despised.

Soon after, Rollo was persuaded to embrace Christianity, and he was baptized with much ceremony by the archbishop of Rouen in the cathedral of that city. As soon as he saw himself in full possession of Normandy, he exhibited such virtues as rendered the province happy, and deserved to make his former outrages forgotten. Religious, wise, and liberal, this captain of pirates became, after Alfred, the greatest and most humane prince of his time.

ROMAN, in general, something belonging to the city of Rome. See **ROME**.

KING OF THE ROMANS, in modern history, is a prince elected to be successor to the reigning emperor of Germany.

ROMANCE, in matters of literature, a fabulous relation of certain adventures designed for the entertainment and instruction of the readers, and differing from the *novel* as it always exhibits actions great, dangerous, and generally extravagant. Many authors of the first name have written on the ancient *romance*. It has exercised the pen of Hurd, of Warburton, and of some ladies, who have not thought it any derogation to the sensibility of their sex to unite antiquarian research with the cultivation of the *belles lettres*. We have not, however, seen anywhere so concise, just, and elegant an account of the origin and progress of *romances* as in D'Israeli's *Curiosities of Literature*. "Romance (says this writer) has been elegantly defined the offspring of fiction and love. Men of learning have amused themselves with tracing the *epocha* of romances. In this

Rollo
Romance.

Romance.

research they have displayed more ingenuity than judgment; and some have fancied that it may have existed as far back as the time of Aristotle; Dearchus, one of his disciples, having written several works of this amusing species.

"Let us, however, be satisfied in deriving it from the Theagenes and Chariclea of Heliodorus, a bishop who lived in the 4th century, and whose work has been lately translated. This elegant prelate was the Grecian Fenelon (A). Beautiful as these compositions are when the imagination of the writer is sufficiently stored with accurate observations on human nature, in their birth, like many of the fine arts, they found in the zealots of religion men who opposed their progress. However Heliodorus may have delighted those who were not insensible to the felicities of a fine imagination, and to the enchanting elegancies of style, he raised himself, among his brother ecclesiastics, enemies; who at length so far prevailed, that it was declared by a synod, that his performance was dangerous to young persons, and that if the author did not suppress it, he must resign his bishoprick. We are told he preferred his romance to his bishoprick. Even so late as in Racine's time, it was held a crime to peruse these unhallowed pages. He informs us, that the first effusions of his muse were in consequence of studying that ancient romance, which his master observing him to devour with the keenness of a famished man, he snatched it from his hands and flung it in the fire; a second copy experienced the same fate. What could Racine do? He bought a third, and took the precaution of devouring it secretly till he got it by heart; after which he offered it to his master with a smile to burn, if he chose, like the others.

The decision of these bigots was founded in their opinion of the immorality of such works. They alleged, that the writers paint too warmly to the imagination, address themselves too forcibly to the passions; and in general, by the freedom of their representations, hover on the borders of indecency. This censure is certainly well-founded. Many of the old romances, and even of the dramas, acted in Scotland two centuries ago, are such as common prostitutes would in this age think indecent. But we are at present concerned with the origin of romance.

"The learned Fleury thinks that they were not known till the 12th century, and gives as their original the history of the dukes of Normandy. Verdier, whose opinion is of no great weight, says the invention of romance was owing to the Normans of France; and that these fictions being originally written in the old Norman language, they were intitled *Normances*; the name was afterwards altered to that of *Romances*. The Spaniards, who borrowed them from the French, called them *Romanzes*, which also did the Italians.

"Dom Rivet, one of the learned associates of the con-

gregation of St Maur, authors of the Literary History of France, fixes their origin in the 10th century. He says, that the most ancient romance known was one which appeared in the middle of that century, under the title of *Philomena*, or *the Beloved*. This romance contains the pretended exploits of Charlemagne before Narbonne. At Toulouse, he tells us, they have preserved a copy of the *Philomena* in its original language; that is to say, the Romaunt or polished; such as was then spoken at court. They preferred this language to the Latin, which was then that of the common people, but vitiated with their corruptions.

"So far have we travelled on the road of conjecture: we shall now turn into the path of fact. It is certain that these compositions derive their name from the language in which they were first written. Abbé Irauld has given us the character of the earliest romances, which we shall transcribe; for to add to what is well expressed, however it may please the vanity of a writer, seldom tends to the gratification of the reader.

"The first romances were a monstrous assemblage of histories, in which truth and fiction were equally blended, but all without probability; a composition of amorous adventures, and all the extravagant ideas of chivalry. The incidents are infinitely multiplied; destitute of connection, of order, and art. These are the ancient and miserable romances which Cervantes, in his celebrated satirical romance of *Don Quixote*, has covered with an eternal ridicule."

"It is, however, from these productions rather in their improved state, that poets of all nations have drawn their richest inventions. The agreeable wildness of that fancy which characterised the eastern nations was caught by the crusaders. When they returned home, they mingled in their own the customs of each country. The Saracens, who were men like themselves, because they were of another religion, and were therefore their enemies, were pictured under the tremendous form of *Pagan Giants*. The credulous reader of that day followed with trembling anxiety the *Red-cross Knight*. It was thus that fiction embellished religion, and religion invigorated fiction. Such incidents have enlivened the cantos of Ariosto, and adorned the epic of Tasso. Spenser is the child of their creation; and it is certain that we are indebted to them for some of the bold and strong touches of Milton."

Other circumstances however have been assigned as the sources of these extravagant fictions. "Castles were erected to repulse the vagrant attacks of the Normans; and in France (from the year 768 to 987) these places became fatal to the public repose. The petty despots who raised these castles, pillaged whoever passed, and carried off the females who pleased them. Rapine, of every kind, was the privilege of Lords! Mezeray observes, that it is from these circumstances romancers have

(A) An ingenious and learned friend inquires, 'Is not the romance of the Golden Ass, by Apuleius, to be considered as an earlier specimen than that of Heliodorus?' To this our author has no objection; but he would not warrant any romance to be the *first* that ever was written. It is thus that some writers, more learned than sagacious, have discovered the first inventor of epistolary correspondence. A lady receives this honour: such learning is desperate! From the Asiatic Researches and other publications on Oriental literature, we are led to believe, that the native country of romance is the east; where it seems to have flourished in all its extravagant grandeur from time immemorial.

romance. have invented their tales of knights-errant, monsters, and giants.

"De Saint Foix, in his Historical Essays on this subject, thus expresses himself: 'Women and girls were not in greater security when they passed by abbeys. The monks sustained an assault rather than relinquish their prey: if they saw themselves losing ground, they brought to their walls the relics of some saint. Then it generally happened that the assailants, seized with awful veneration, retired, and dared not to pursue their vengeance. This is the origin of the enchanters, of the enchantments, and of the enchanted castles, described in romances.'

"To these may be added what the author of Northern Antiquities, Vol. I. p. 243, writes, that 'as the walls of the castles ran winding round them, they often called them by a name which signified *serpents* or *dragons*; and in these were commonly secured the women and young maids of distinction, who were seldom safe at a time when so many bold warriors were rambling up and down in search of adventures. It was this custom which gave occasion to ancient romancers, who knew not how to describe any thing simply, to invent so many fables concerning princesses of great beauty, guarded by dragons.'

"The Italian romances of the 14th century were spread abroad in great numbers. They formed the polite literature of the day. But if it is not permitted to authors freely to express their ideas, and give full play to the imagination, these works must never be placed in the study of the rigid moralist. They indeed pushed their indelicacy to the verge of grossness, and seemed rather to seek than to avoid scenes which a modern would blush to describe. They (to employ the expression of one of their authors) were not ashamed to name what God had created. Cinthio, Bandello, and others, but chiefly Boccaccio, rendered libertinism agreeable, by the fascinating charms of a polished style, and a luxuriant imagination.

"This however must not be admitted as an apology for immoral works; for poison is still poison, even when it is delicious. Such works were, and still continue to be, the favourites of a nation which is stigmatised for being prone to illicit pleasures and impure amours. They are still curious in their editions, and are not parsimonious in their price for what they call an uncastrated copy. There are many Italians, not literary men, who are in possession of an ample library of these old novelists.

"If we pass over the moral irregularities of these romances, we may discover a rich vein of invention, which only requires to be released from that rubbish which disfigures it to become of an invaluable price. The Decamerons, the Hecatommithi, and the Novellas of these writers, made no inconsiderable figure in the little library of our Shakespeare. Chaucer is a notorious imitator and lover of them; his Knight's Tale is little more than a paraphrase of Boccaccio's Teseoide. Fontaine has caught all their charms with all their licentiousness. From such works, these great poets, and many of their contemporaries, frequently borrowed their plots; not uncommonly kindled at their flame the ardour of their genius; but bending too submissively to their own peculiar taste, or that of their age, in extracting the ore, they have not purified it of the alloy.

"We must now turn our contemplation to the French romances of the last century. They were then carried to a point of perfection, which as romances they cannot exceed. To this the *Astrea* of D'Urfé greatly contributed. It was followed by the illustrious *Basil*, the great *Cyrus*, *Clelia*, &c. which, though not adapted to the present age, gave celebrity to their authors. Their style, as well as that of the *Astrea*, is diffuse and insipid. *Zaïde* (attributed by some to Segrais, but by Huet to Madame La Fayette) and the princesses of Cleves are translated, and though they are masterpieces of the kind, were never popular in our country, and are little adapted to its genius.

"It is not surprising that romances have been regarded as pernicious to good sense, morals, taste, and literature. It was in this light they were considered by Boileau; because a few had succeeded, a crowd imitated their examples. Gomberville and Scudery, and a few more were admired; but the satirist dissolved the illusion. This he did most effectually by a dialogue, in which he ridicules those citizens of a certain district, whose characters were concealed in these romances, under the names of Brutus, Horace Coclès, Lucretius, and Clelia. This dialogue he only read to his friends, and did not give it for a long time to the public, as he esteemed mademoiselle de Scudery: but when at length it was published, it united all the romance writers against our satirist.

"From romances, which had now exhausted the patience of the public, sprung novels. They attempted to allure attention by this inviting title, and reducing their works from ten to two volumes. The name of romance disgusted; and they substituted those of histories, lives, memoirs, and adventures. In these works (observes Irai) they quitted the unnatural incidents, the heroic projects, the complicated and endless intrigues, and the exertion of noble passions; heroes were not now taken from the throne, they were sought for even amongst the lowest ranks of the people. On this subject, I shall just observe, that a novel is a very dangerous poison in the hand of a libertine; it may be a salutary medicine in that of a virtuous writer." See NOVEL.

ROMAGNA, a province of Italy, in the pope's territories, bounded on the north by the Ferrarese, on the south by Tuscany and the duchy of Urbino, on the east by the Gulf of Venice, and on the west by the Bolognese and a part of Tuscany. It is fertile in corn, wine, oil, fine fruits, and pastures. It has also mines, mineral waters, and salt-works, which make its principal revenue. Ravenna is the capital town.

ROMANIA, a province of Turkey in Europe, bounded on the north by Bulgaria, on the east by the Black Sea, on the south by the Archipelago and the sea of Marmora, and on the west by Macedonia and Bulgaria; being 200 miles in length and 150 in breadth. It was formerly called *Thrace*, and is the principal and largest of all the provinces the Turks possess in Europe. It is a fruitful country in corn and pastures, and there are mines of silver, lead, and alum. It is divided into three great governments or sangiacates; namely, Kirkel, of which Philipoli is the capital; Galipoli, whose capital is of the same name; and Byzantium, or Byzia, or Viza, of which Constantinople is the capital. The Turks bestow the name

Romance
||
Romania..

Romans,
Rome.

name of *Romelia* on all the territories they possess in Europe.

ROMANO (Giulio), a famous painter, was the disciple of Raphael, who had such an affection for him, that he appointed him, with John Francis Penni, his heir. His conceptions were more extraordinary and more elevated than even those of his master, but not so natural. He was wonderful in the choice of attitudes; but did not perfectly understand the lights and shades, and is frequently harsh and ungraceful. The folds of his draperies, says Du Fresnoy, are neither beautiful nor great, easy nor natural, but all extravagant, like the fantastical habits of comedians. He was, however, superior to most painters, by his profound knowledge of antiquity; and, by conversing with the works of the most excellent poets, particularly Homer, he made himself master of the qualifications necessarily required in a great designer. Julio Romano was also well skilled in architecture. He was employed by cardinal de Medicis, who was afterwards pope under the name of *Clement VII.*; and afterwards went to Mantua, whither he was invited by Frederic Gonzaga, marquis of that city, in order to avoid his being justly punished for his having drawn at Rome the designs of 20 obscene plates, engraved by Mark Antony, to which Aretino added the same number of sonnets. Julio Romano embellished the city of Mantua with many of his performances both in painting and architecture; and died in that city in 1545, at 54 years of age, much regretted by the marquis, who had an extraordinary friendship for him.

ROME, a very ancient and celebrated city of Italy, situated on the river Tiber, in E. Long. 13°. N. Lat. 41. 45. once the capital of the greatest empire in the world; and famous in modern history for being the centre of an ecclesiastical tyranny, by which for many ages the greatest part of the world was held in subjection.

Romans descended from Æneids.

The ancient Romans derived their origin from Æneas the Trojan hero: and though some historians pretend to treat his voyage into Italy as a mere fable, yet no sufficient reasons for rejecting this account have been offered, nor has any more probable history of the origin of the Roman name been given; so that, without entering into the dispute, we shall proceed to the history of Æneas and his successors as they are recorded by the generality of Latin writers.

Æneas flies from Troy to mount Ida.

When the Greeks, by the treachery of the sons of Antenor, or by whatever other means it happened, were become masters of Troy, Æneas with the forces under his command retired into the fortress of the city, and defended it bravely for some time; but yielding at length to necessity, he conveyed away his gods, his father, wife, and children, with every thing he had that was valuable; and, followed by a numerous crowd of Trojans, fled to the strong places of Mount Ida. Hither all those of his countrymen, who were more anxious than the rest to preserve their liberty, flocked to him from the several towns of Troas. His army thus augmented and advantageously posted, he continued quiet, waiting for the departure of the Greeks, who, it was imagined, would return home as soon as they had pillaged the country. But these, after they had enriched themselves with the spoils of Troy and of the neighbouring towns, turned their arms against the su-

gatives, resolving to attack them in their strong-holds upon the mountain. Æneas, to avoid the hazard of being forced in his last refuge, had recourse to negotiation; and, by his heralds, intreated the enemy not to constrain him to a battle. Peace was granted him, on condition that he with his followers quitted the Trojan territories; and the Greeks, on their part, promised not to molest him in his retreat, but to let him safely pass through any country within the extent of their domination.

Upon this assurance Æneas equipped a fleet, in order to seek a settlement in some foreign land. We are told, that at his departure he left his eldest son Ascanius with the Dasylires, a people of Bithynia, who desired to have him for their king; but that the young prince did not remain long with them: for when Scamandrius (Asteranax), with the rest of the Hætorides whom Neoptolemus permitted to return home from Greece, repaired to him, he put himself at their head, and led them back to their native country.

The Trojan having crossed the Hellespont, arrived in the peninsula of Pallene, where he built a city, called from him *Æneia*, and left in it a part of that multitude which had followed him. From thence he sailed to Delos; and thence to Cythera, where he erected a temple to Venus. He built another to the same goddess in Zacynthus, in which island he likewise instituted games, called the *races of Æneas and Venus*: the statues of both, says Dionysius, are standing to this day. In Leucas, where the Trojans landed, was to be seen, in the same author's time, a temple erected to Venus the mother of Æneas. Nor were Actium and Ambracia without monuments that testified his arrival in those places. At Dodona were found brazen vases, upon which the name of the Trojan hero, who had made an offering of them to Jupiter, was engraven in old characters. Not far from Buthrotos, in Epirus, a Trojan camp which had escaped the injuries of time, retained the name of *Troja*. All these antiquities, still subsisting in the reign of Augustus, were then looked upon as indisputable proofs of Æneas's voyage to Epirus: "and that he came into Italy (adds the same Dionysius) we have the concurrent testimony of all the Romans; the ceremonies they observe in their sacrifices and festivals bear witness to it, as also the Sibylline books, the Pythian oracles, and many other things which nobody can reasonably reject as invented merely for ornament."

The first land of Italy which Æneas made, after crossing the Ionian sea, was cape Minerva, in Iapygia; and here he went on shore. Sailing afterwards from hence, and coasting along the south-east of Italy and the east and south sides of Sicily, he arrived with his fleet either by choice or by stress of weather at the port of Drepanum in that island. Elymus and Ægeus, who had escaped from Troy a little before him, had brought a Trojan colony to this place. Æneas augmented it by a good number of his followers, whom, pleased to have found a safe resting place after many dangers and fatiguing voyages, he willingly left behind him at their request; though certain authors pretend that he was constrained to it by the difficulty of transporting them, because some Trojan women, weary of the sea, had burnt a considerable part of his ships.

Æneas, leaving Drepanum, steered his course for Italy

taly across the Tyrrhenian sea. To the cape where he first landed, he gave the name *Palinurus*, from one of his pilots who died there. The little island of *Leucasia*, not far distant, whither he sailed next, got its name in like manner from a daughter of *Æneas's* sister, who there ended her days. The port of *Misenum*, the island of *Prochyta*, and the promontory of *Cajeta*, where he successively arrived, were so called from being the burial places, the first of a noble Trojan his companion, the second of his kinswoman, and the third of his nurse. At length the Trojan prince and his chosen band finished their tedious and painful voyages on the coast of the since famous *Latium*. This was a small territory on the east side of the river *Tiber*, containing a part of the present *Campagna di Roma*: *Latinus* was the king of it; his capital town, *Laurentum*; his subjects, a people who, till his time called *Aborigines*, had from him taken the name of *Latins*. Here, far removed from their implacable enemies the Greeks, *Æneas* and his followers undertook to raise a second Troy: they fortified a camp near the mouth of the *Tyber*, gave it the name of *Troy*, and flattered themselves with the hopes of a quiet settlement, and a period to all their unhappy adventures.

When *Æneas* arrived in Italy, *Latinus* was engaged in a war with the *Rutuli*, a neighbouring people, in which he was attended but with very indifferent success, when news was brought him that a foreign army had made a descent on his coasts, pillaged the maritime part of his dominions, and were fortifying themselves in a camp at a small distance from the sea. Hereupon he marched against them with all his forces, hoping to oblige them to reembark and abandon his dominions, without meeting with any great resistance from a band of vagabonds, as he supposed, or pirates, come only to seek for plunder: but finding them, as he drew near, well-armed, and regularly drawn up, he thought it advisable to forbear engaging troops that appeared so well disciplined; and, instead of venturing a battle, to desire a parley. In this conference *Latinus* understanding who they were, and being at the same time struck with terror, and touched with compassion for those brave but unfortunate men, entered into a treaty with them, and assigned them a tract of land for a settlement, on condition that they should employ their arms and exert their valour in defence of his dominions, and look upon the *Rutuli* as a common enemy. This condition *Æneas* readily accepted; and complied with his engagement so faithfully, that *Latinus* came at length to repose an entire confidence in the Trojan; and in proof of it gave him *Lavinia*, his daughter and only child, in marriage, securing to him by that means the succession to the throne of *Latium*. *Æneas*, to testify his gratitude to *Latinus*, and affection for *Lavinia*, gave her name to the camp he had pitched; and instead of *Troy* called it *Lavinium*. The Trojans followed the example of their leader; and by making alliances with Latin families, became, in a short time, one and the same people with the Latins.

In the mean time *Turnus*, the queen's nephew, who had been brought up in the palace under the eye of *Latinus*, and entertained hopes of marrying *Lavinia* and succeeding to the throne, seeing the princess bestowed on a stranger, and all his views defeated, went

over to the *Rutuli*; and by stirring them up, brought on a battle between them and the *Latins*, in which both he and *Latinus* were killed. Thus *Æneas*, by the death of his father-in-law, and by that of a troublesome rival, came into the quiet possession of the kingdom of *Latium*, which he governed with great wisdom, and transmitted to his posterity.

Æneas is said to have reigned three years; during which time he established the worship of the gods of his own country, and to the religion of the *Latins* added that of *Troy*. The two *Palladiums*, which had been the protectors of that city, became the tutelary deities of *Lavinium*, and, in after ages, of the whole Roman empire. The worship of *Vesta* was likewise introduced by *Æneas*; and virgins, from her called *Vestals*, were appointed to keep a fire continually burning in honour of that goddess. *Jupiter*, *Venus*, and many other deities who had been revered in *Troy*, became, in all likelihood, known to the *Latins* by means of *Æneas*; which gave occasion to the poets of representing him under the character of a pious hero.

While *Æneas* was thus employed, the *Rutuli*, ancient enemies of the Latin name, entering into an alliance with *Mezentius* king of the *Tyrrhenians*, took the field with a design to drive out those new-comers, of whose power they began to conceive no small jealousy. *Æneas* marched out against them at the head of his Trojans and *Latins*. Hereupon a battle ensued, which lasted till night; when *Æneas* being pushed to the banks of the *Numicus*, which ran close by *Lavinium*, and forced into that river, was there drowned. The Trojans concealed his body; and pretending that he had vanished away on a sudden, made him pass for a deity among his credulous subjects, who accordingly erected a temple to him under the title of *Jupiter Indiges*.

Upon the death of *Æneas*, his son *Euryleon*, called also *Ascanius* and *Iulus*, ascended the throne; but as the young king did not think it advisable to venture a battle in the very beginning of his reign, with a formidable enemy, who promised himself great success from the death of *Æneas*, he had the prudence to confine himself within the walls of *Lavinium*, and to try whether he could, by an honourable treaty, put an end to so dangerous a war. But the haughty *Mezentius* demanding of the *Latins*, as one of the conditions of a peace, that they should pay him yearly, by way of tribute, all the wine produced in the territory of *Latium*, *Ascanius* rejected the proposal with the utmost indignation; and having caused all the vines throughout his dominions to be consecrated to *Jupiter*, and by that means put it out of his power to comply with the enemy's request, he resolved to make a vigorous sally, and try whether he could, by force of arms, bring the insulting *Tyrrhenian* to more reasonable terms. The main body of the enemy's army was encamped at some distance from *Lavinium*; but *Lausus*, the son of *Mezentius*, with the flower of their youth under his command, lay entrenched at the very gates of the city. The Trojans, who had been long accustomed to make vigorous sallies, marching out in the night, attacked the post where *Lausus* commanded, forced his entrenchments, and obliged the troops he had with him to save themselves by flying to the main body of the army encamped on the plain; but the unexpected arrival and overthrow.

Rome.
8
Who de-
feats the
Rutuli.

9
His kind-
ness to La-
vinia and
her son.

10
Ascanius
founds Alba
Longa.

11
Resigns the
kingdom.

12
Origin of
the name
Tiber.

overthrow of their advance-guard struck them with such terror, that, instead of stopping the flight of their companions, they fled with them, in great disorder, to the neighbouring mountains. The Latins pursued them, and in the pursuit Lausus was killed: whose death so discouraged Mezentius, that he immediately sued for peace; which was granted him, upon condition, that for the future the Tiber should be the boundary between the Latin and Hetrurian territories.

In the mean time Lavinia, who had been left with child by Æneas, entertaining a strong jealousy of the ambition of her son-in-law, retired to the woods, and was there peaceably delivered of a son, who, from his father, was named *Æneas*; and, from the place of his birth, had the surname of *Sylvius*: but as the queen's flight, who had disappeared on a sudden, raised suspicions at Lavinium prejudicial to the reputation of Ascanius, he used all possible means to remove them, caused diligent search to be made after Lavinia, calmed her fears, and prevailed upon her to return to the town with her son, whom he ever after treated as a brother. Lavinium grew every day more populous; but as it was in reality the patrimony of Lavinia, and the inheritance of her son Sylvius, Ascanius resolved to resign it to them, and build elsewhere another city for himself. This he made the place of his residence, and the capital of his new kingdom, calling it *Alba Longa*; *Alba*, from a white sow, which we are told Æneas had found in the place where it was built; and *Longa*, to distinguish it from another town of the same name in the country of the Marfi; or rather, because it extended, without having much breadth, the whole length of a lake near which it was built. It was 30 years after the building of Lavinium that Ascanius fixed his abode at Alba; and there he died, after a reign of about 38 years, 12 of which he had resided at his new settlement. He left a son called *Iulus*; so that between him and Sylvius lay the right of succession to the Latin throne; the latter being the son, and the former the grandson, of Æneas.

The Latins not thinking it their interest to continue divided, as it were, into two states, resolved to unite Alba and Lavinium into one sovereignty; and as Sylvius was born of Lavinia the daughter of Latinus, and had thereby an undoubted title to the kingdom of his grandfather, whereas the other was but the son of a stranger, the Latins bestowed the crown on Sylvius; and, to make Iulus some amends, decreed to him the sovereign power in affairs of religion; a power which thenceforth continued in his family. Sylvius was succeeded by 13 kings of the same race, who for near 400 years reigned at Alba; but we scarce know any thing of them besides their names, and the years of their respective reigns. Æneas Sylvius died, after a reign of 29 years. His son, called also *Æneas Sylvius*, governed Latium 31 years. *Latinus Sylvius*, who succeeded him, swayed the sceptre for the space of 51 years — Alba reigned 39; Capetus, by Livy named *Atys*, 26; Capis, 28; and Capetus, 13. Tiberinus, who succeeded him, engaged in a war which proved fatal to him; for in a battle which was fought on the banks of the Albula, he was forced into that river and drowned. From him the river took the name of *Tiber*, which it has borne ever since. Agrippa succeeded Tiberinus after a reign of eight years; and left the throne, which

he had held 41 years, to Alladius; who reigned 19, and was succeeded by Aventinus, who left his name to the hill Aventinus, where he was interred. Procas, who succeeded him, and reigned 23 years, was the father of Numitor and Amulius; and at his death bequeathed the throne to his elder son Numitor. But Amulius, who surpassed his brother in courage and understanding, drove him from the throne; and to secure it to himself, murdered Ægeus, Numitor's only son, and consecrated his daughter Rhea Sylvia to the worship of Vesta, by which she was obliged to perpetual virginity. But this precaution proved ineffectual; for as the Vestal was going to a neighbouring spring to fetch water for the performance of a sacrifice to Mars, she was met and ravished by a man in a military habit, like that in which the god Mars is represented. Some authors think that this counterfeit Mars was a lover come thither by her appointment; others charge Amulius himself with using this violence to his niece, not so much to gratify his lust, as to have a pretence to destroy her. — For ever after he caused her to be carefully watched, till she was delivered of two sons; and then exaggerating her crime in an assembly of the people, he prevailed upon them to sentence her to death, and to condemn the fruit of her criminal amour to be thrown into the Tiber. The sentence against Rhea was, according to some authors, changed by Amulius, at the request of his daughter Antho, into perpetual confinement, but executed against the twins; who being laid in a wooden trough, and carried to the foot of mount Palatine, were there turned adrift on the Tiber, which at that time overflowed its banks. But the wind and stream proved both so favourable, that at the fall of the water the two infants were left safe on the strand, and were there happily found by Faustulus, the chief of the king's shepherds, and suckled by his wife Acca Laurentia, who for her disorderly life was called *Lupa*; and this probably gave rise to the fabulous miracle of their being nursed by a wolf.

As Faustulus was probably well acquainted with the birth of the twins, he took more than ordinary care of their education, and sent them to Gabii to be instructed there in Greek literature. As they grew up, they appeared to have something great in their mien and air which commanded respect; and the ascendant which they assumed over the other shepherds made them dreaded in the forests, where they exercised a sort of empire. A quarrel happening between the herdsmen of Amulius and those of Numitor, the two brothers took the part of the former against the latter; and some blood being shed in the fray, the adverse party, to be revenged on *Romulus* and *Remus* (for so the twins were called), on the festival of Lupercalia, surprised Remus, and carried him before Numitor, to be punished according to his deserts. But Numitor feeling himself touched in the prisoner's favour, asked him where he was born, and who were his parents. His answer immediately struck Numitor with a lively remembrance of his two grandsons; their age, which was about 18 years, agreed with the time when the two infants were exposed upon the Tiber; and there needed no more to change his anger into tenderness.

In the mean time Romulus, eager to rescue his brother, and pursue those who had carried him off, was preparing to be revenged on them; but Faustulus dissuaded

Rome

13
Adventu-
of Rhea
Sylvia.

14
Of Rom-
ulus and
mus.

me. suaded him from it; and on that occasion, disclosing to him his birth, awakened in his breast sentiments worthy of his extraction. He resolved, at all adventures, to attempt the delivering of his mother and grandfather from oppression. With this view he assembled the country people, over whom he had assumed a kind of sovereignty, and engaged them to come to the city on an appointed day, and enter it by different gates, provided with arms, which they were to conceal. While Romulus was thus disposing every thing for the execution of his design, Numitor made the same discovery to Remus concerning his parents, and the oppressions they groaned under; which so fired him, that he was ready to embark in any enterprise. But Numitor took care to moderate the transports of his grandson, and only desired him to acquaint his brother with what he had heard from him, and to send him to his house. Romulus soon came, and was followed by Faustulus, who took with him the trough or skiff in which the twins had been exposed, to show it to Numitor: but, as the shepherd betrayed an air of concern and earnestness in his looks, he was stopped at the gate of the city, led before Amulius, and examined concerning his burden. It was easily known by its make and inscription, which was still legible; and therefore Faustulus owned what it was, and confessed that the twins were living; but, in order to gain time, pretended that they were feeding flocks in a remote desert. In the mean time, the usurper's death being resolved on, Remus undertook to raise the city, and Romulus to invest the king's palace. The country people came at the time appointed, and formed themselves into companies each consisting of 100 men. They had no other ensigns but bundles of hay hanging upon long poles, which the Latins at that time called *manipuli*; and hence came the name of *manipulares*, originally given to troops raised in the country. With this tumultuous army Romulus beset the avenues of the palace, forced the guard, and having killed the tyrant, after he had reigned 42 years, restored his grandfather Numitor to the throne.

Affairs being thus settled at Alba, the two brothers, by the advice of Numitor, undertook the founding of a new colony. The king bestowed on them those lands near the Tiber where they had been brought up, supplied them with all manner of instruments for breaking up ground, with slaves, and beasts of burden, and granted full liberty to his subjects to join them. Hereupon most of the Trojans, of whom there still remained 50 families in Augustus's time, chose to follow the fortune of Romulus and Remus, as did also the inhabitants of Pallantium and Saturnia, two small towns. For the more speedy carrying on of the work, it was thought proper to divide those who were to be employed in the building of the city into two companies, one under the command of Romulus, the other of Remus; but this division, which was designed purely with a view to the public welfare, and that the two parties might work by way of emulation, gave birth to two factions, and produced a jealousy between the two brothers, which broke out when they came to choose a place for the building of their new city; for Remus was for the Aventine, and Romulus for the Palatine mount. Upon which, the matter being referred to their grandfather, he advised the contending parties to have recourse to the gods, and to

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put an end to the dispute by augury, to which he was himself greatly addicted. The day appointed for the ceremony being come, the brothers posted themselves each upon his hill; and it was agreed, that whoever should see the first flight, or the greatest number, of vultures, should gain his cause. After the two rivals had waited some time for the appearance of a favourable omen, Romulus, before any had appeared, sent to acquaint his brother that he had seen some vultures; but Remus, having actually seen six, while his brother's messengers were yet on their way, hastened, on their arrival, to mount Palatine, to examine the truth of what they had told him. He had no sooner got thither, than by an unexpected good fortune twelve vultures appeared to Romulus. These he immediately showed to his brother; and, transported with joy, desired him to judge himself of the truth of what his messengers had told him. However, Remus discovered the deceit; and, being told that Romulus had not seen the twelve vultures till after he had seen six, he insisted on the time of his seeing them, and the other on the number of birds he had seen. This widened the breach between the two brothers; and, their parties being divided, while each man espoused the cause of his leader, the dispute grew so warm, that, from words they came at length to blows. The shepherd Faustulus, who was equally dear to both the brothers, endeavouring to part the combatants, was by an unknown hand laid dead on the spot. Some writers tell us, that Remus likewise lost his life in the fray; but the greater number place his death later, and say that he was killed by one Fabius, for having, in derision, leaped over the wall of the new city: but Livy says, the more common report was, that Remus fell by the hand of his brother.

Romulus, being now head of the colony, by having got the better of his brother's party in the late engagement, applied his thoughts wholly to the building of the city, which he proposed to call after his own name. He chose mount Palatine for its situation, and performed all those ceremonies which the superstition of the Hetrurians had introduced. He first offered sacrifices to the gods, and ordered all the people to do the same: and from that time decreed, that eagles should be the auspices of his new colony. After this, great fires were kindled before their tents, and all the people leaped through the flames to purify themselves. When this ceremony was over, they dug a trench round the spot where the assemblies of the people were afterwards held, and threw into it the first-fruits of whatever they were allowed to make use of for food: every man of the colony was ordered to cast into the same trench an handful of earth, brought either from his own or some neighbouring country. The trench they called *Mundus*, that is, *the world*, and made it the centre round which the city was to be built. Then Romulus, yoking an ox and a cow to a plough, the coulters whereof was brass, marked out, by a deep furrow, the whole compass of the city. These two animals, the symbols of marriage, by which cities are peopled, were afterwards slain upon the altar. All the people followed the plough, throwing inwards the clods of earth which the ploughshare sometimes turned outwards. Wherever a gate was to be made, the plough was lifted up, and carried; and hence came the Latin word *porta*, "a gate," derived

Rome.

16
Death of
Remus.

17
Foundation
of Rome.

T. t

nived

Rome.

rived from the verb *portare*, "to carry." As mount Palatine stood by itself, the whole was inclosed within the line made by the plough, which formed almost the figure of a square; whence, by Dionysius Halicarnassensis, it is called *Roma Quadrata*.

As to the exact year of the foundation of Rome, there is a great disagreement among historians and chronologers. Fabius Pictor, the most ancient of all the Roman writers, places it in the end of the seventh Olympiad; that is, according to the computation of Usher, in the year of the world 3256, of the flood 1600, and 748 before the Christian æra. The Romans, if we may so call them, began to build, as Plutarch and others inform us, on the 21st of April; which day was then consecrated to Pales, goddess of the shepherds; whence the festival of Pales, and that of the foundation of the city, were afterwards jointly celebrated at Rome.

18
At first but
a poor vil-
lage.

When Rome had received the utmost perfection which its poor and rude founder could give it, it consisted of about 1000 houses, or rather huts; and was properly speaking a beggarly village, whereof the principal inhabitants followed the plough, being obliged to cultivate with their own hands the ungrateful soil of a barren country which they had shared among themselves. Even the walls of Romulus's palace were made of rushes, and covered with thatch. As every one had chosen his ground to build upon, without any regard to the regularity and beauty of the whole, the streets, if we may so call them, were both crooked and narrow. In short, Rome, till it was rebuilt after the burning of it by the Gauls, was rather a disorderly heap of huts, than a city built with any regularity or order.

19
Romulus
elected
king.

As soon as the building of the city was finished, Romulus assembled the people, and desired them to choose what kind of government they would obey. At that time monarchy was the unanimous voice of the Romans, and Romulus was elected king. Before he ascended the throne, however, he consulted the will of the gods by augury; and having received a favourable answer, it thence became an established custom to have recourse to augury before the raising any one to the dignity of king, priest, or any public employment. After this he applied himself to the establishment of good order and subordination among his subjects. He put on a habit of distinction for himself, appointed 12 lictors to attend him as guards, divided his subjects, who at this time consisted only of 33,000 men, into *curiæ*, *decuriæ*, *patricians*, *plebeians*, *patrons*, *clients*, &c. for an account of which, see these articles as they occur in the order of the alphabet. After this he formed a senate consisting of 100 persons, chosen from among the patricians; and a guard of 300 young men called *celeræ*, who attended the king, and fought either on foot or on horseback as occasion required. The king's office at home was to take care of religious affairs, to be the guardian of laws and customs; to decide the weightier causes between man and man, referring those of smaller moment to the senate; to call together the senators, and assemble the people, first delivering his own opinion concerning the affair he proposed, and then ratifying by his consent what was agreed on by the majority. Abroad, and in the time of war, he was to command the army with absolute authority, and to take care of the public money. The senate were not only to be judges in matters of small

importance, but to debate and resolve upon such public affairs as the king proposed, and to determine them by a plurality of voices. The people were allowed to create magistrates, enact laws, and resolve upon any war which the king proposed; but in all these things the consent of the senate was necessary.

Romulus next proceeded to settle the religious affairs of his people. Many of the Trojan and Phrygian deities were added to those whom the Aborigines or Italian natives already worshipped. He chose priests, instituted festivals, and laid the foundation of a regular system of religion; after which, as his colony was still thinly peopled, he opened an asylum for fugitive slaves, homicides, outlaws, and debtors. These, however, he did not at first receive within the walls, but appointed for their habitation the hill Saturnius called afterwards *Capitolinus*, on which he erected a temple to a divinity of his own invention, whom he named the *Asylean god*, under whose protection all criminals were to live securely. But afterwards, when the city was enlarged, the asylum was inclosed within the walls, and those who who dwelt in it included among the citizens of Rome.

When Romulus had thus settled every thing relating to his new colony, it was found that a supply of women was wanting to perpetuate its duration. This occasioned some difficulty; for the neighbouring nations refused to give their daughters in marriage to such a crew of vagabonds as had settled in Rome; wherefore Romulus at last resolved on the following expedient. By the advice of his grandfather Numitor, and with the consent of the senate, he proclaimed a solemn feast and public games in honour of the Equestrian Neptune called *Consus*. This occasioned a great concourse of people, who flocked from the adjacent parts to behold these pompous shows, together with the new city. But, in the midst of the solemnity, the Romans, rushing in with their swords drawn, seized all the young women, to the number of 683, for whom Romulus chose husbands. Among all those who were thus seized, only one married woman, named *Herfiliæ*, was found; and Romulus is said to have kept her for himself.

This violence soon brought on a war with the neighbouring nations. Acron king of Cæcina, a city on the confines of Latium, having entered into a league with the inhabitants of Crustumini and Antemnæ, invaded the Roman territories. Romulus marched against them without delay, defeated the confederate army, killed their king in single combat, decreed himself a triumph, and consecrated the spoils of Acron to Jupiter Feretrius, under the name of *Opima Spolia*. The city of Cæcina was razed to the ground, and the inhabitants transplanted to Rome, where they were admitted to the privileges of citizens. The king then marched with one legion (consisting at this time of 3000 foot and 300 horse) against the Crustumini and Antemnates, both of whom he defeated in battle, and transplanted the inhabitants to Rome; which being incapable of holding such a number, Romulus took in the hill Saturnius above-mentioned, on the top of which he built a citadel, committing the care of it to a noble Roman named *Tarpeius*. The citadel was surrounded on all sides with ramparts and towers, which equally commanded the city and country. From the foot of the hill Saturnius a wall was carried on quite to the Tiber, and a gate opened

opened in it named *Carmentalis*, from Carmenta the mother of Evander, who either lived there, or had some chapel or altar erected to her.

Romulus had now become so formidable to his neighbours, and had so well established his reputation for clemency, that several cities of *Hetruria* voluntarily submitted to him. *Cælius*, an *Hetrurian* general, led the troops under his command to Rome, and settled on an hill near the city, which from him took the name of *Mount Cælius*. The Sabines, however, not in the least dismayed at this increase of the Roman forces, sent a deputation to Romulus, demanding restitution of the young women who had been carried off; and, upon his refusal, marched to Rome with an army of 25,000 foot and 1000 horse, under the command of their king *Titus Tatius*. Romulus, having received supplies from *Numitor* and from *Hetruria*, likewise took the field, with 20,000 foot and 800 horse, with whom he seized an advantageous post, and fortified himself so strongly, that he could not be attacked. The Sabine monarch, perceiving the military skill of Romulus, began to be apprehensive of the event; but was extricated out of his difficulties by the treachery of *Tarpeia* daughter to the governor of the citadel, who agreed to betray that important fortress to the enemy, on condition of being rewarded with the bracelets which the Sabines wore on their left arms. But when once they became masters of this important place, they are said to have crushed *Tarpeia* under the weight of their bucklers, pretending that thus they discharged their promise, as they wore their bucklers also on their left arms. The possession of the citadel enabled the Sabines to carry on the war with more success; but, at last, in a general engagement, they had the misfortune to be driven back into the citadel, whither they were pursued by the Romans, who expected to have retaken that important post; but the enemy, rolling down great stones from the top of the hill, wounded Romulus on the head, so that he was carried insensible out of the field of battle, while, in the mean time, his troops were repulsed, and pursued to the very gates of Rome. However, the king soon recovering himself, encouraged his routed troops, and drove the enemy back into the citadel. But while the two nations were thus fiercely contending, the women, for whose cause the war had been commenced, undertook the office of mediators; and having obtained leave from the senate, marched in a body to the camp of the Sabines, where they pleaded the cause of their husbands so effectually, that a treaty of union between the two nations was set on foot, and a peace was at last concluded, on the following terms. 1. That the two kings should reside and reign jointly at Rome. 2. That the city should still, from Romulus, be called *Rome*; but the inhabitants *Quirites*, a name till then peculiar to the Sabines. 3. That the two nations should become one; and that the Sabines should be made free in Rome, and enjoy all the privileges of Roman citizens. As Rome was chiefly indebted for this increase of her power and splendor to the Sabine women, honourable privileges and marks of distinction were allowed them. Every one was commanded to give way to them; in capital causes they were exempted from the jurisdiction of the ordinary judges; and their children were allowed to wear a golden ball hanging from their necks,

and a particular kind of robe called *prætecta*, to distinguish them from the vulgar.

The two kings reigned with great harmony for the space of five years; during which time the only military exploit they accomplished was the reduction of the city of *Cameria*, at a small distance from Rome. Four thousand of the *Camerini* were transplanted to Rome, and a Roman colony sent to repopulate *Cameria*; soon after which the Sabine king was murdered by the *Lavinians*, on account of his granting protection to some of his friends who had ravaged their territories. The *Lavinians*, fearing the resentment of Romulus, delivered up the assassins into his hands; but he sent them back unpunished, which gave occasion to suspect that he was not displeased with the death of his colleague.

Soon after the death of *Tatius*, Rome was afflicted with famine and pestilence, which encouraged the *Camerini* to revolt; but Romulus marching against them suddenly, defeated them with the loss of 6000 men. After which he attacked the *Fidenates*, whose city stood about five miles from Rome, took their capital, and made it a Roman colony. This drew upon him the resentment of the *Veientes*, a powerful nation in the neighbourhood, who claimed *Fidene* as within their jurisdiction; but their forces being defeated in two engagements, and a great number of them taken prisoners, they were obliged to sue for peace. Romulus granted them a truce for 100 years, on condition that they delivered to him seven small towns on the *Tiber*, together with some salt-pits near the mouth of that river, and sent 50 of their chief citizens as hostages to Rome. The prisoners taken in this war were all sold for slaves.

The remaining part of the life of Romulus was spent in making laws for the good of his people; but towards the latter end of his reign, being elated with success, he began to enlarge the bounds formerly set to his prerogative, and to behave in an arbitrary manner. He paid no longer any regard to the voice of the senate, but assembled them only for form's sake to ratify his commands. The senate therefore conspired to destroy him, and accomplished their purpose while he was reviewing his troops. A violent storm of hail and thunder dispersed the army; and the senators taking this opportunity, when they were left alone with the king, instantly killed him, and conveyed his body out of sight. Some writers tell us, that, the better to conceal the fact, they cut his body in pieces, each of them carrying away a part under his robe; after which they told the multitude, that their king was on a sudden surrounded by flame, and snatched up into heaven. This stratagem, however, did not satisfy the soldiery, and violent disturbances were about to ensue, when *Julius Proculus*, a senator of great distinction, having assembled the *Curia*, told them that Romulus had appeared to him, and enjoined him to acquaint the people, that their king was returned to the gods from whom he originally came, but that he would continue to be propitious to them under the name of *Quirinus*; and to the truth of this story *Julius* swore.

Romulus reigned, according to the common computation, 37 years: but some historians reduce the length of his reign to little more than 17; it being very unlikely, as they observe, that a prince of such an active disposition should perform nothing worthy of

Rome. record during a period of 20 years. Be this as it will, however, the death of Romulus was followed by an interregnum, during which the senators, to prevent anarchy and confusion, took the government into their own hands. Tatius added another hundred to that body; and these 200 senators divided themselves into decuries or tens. These decuries drew lots which should govern first; and the decury to whose lot it fell enjoyed the supreme authority for five days; yet in such a manner, that one person only of the governing decury had the ensigns of sovereignty at a time. To these another decury succeeded, each of them sitting on the throne in his turn, &c. But the people soon growing weary of such frequent change of masters, obliged the senate to resolve on the election of a king. The senate referred the election to the people, and the people to the senate, who at last undertook the task. Some difficulties, however, occurred: the Romans did not choose to be subject to a Sabine; and the Sabines, as they had been subject to Romulus after the death of Tatius, insisted that the king should be chosen out of their nation. At last it was agreed, that the king should be a Sabine, but that the Romans should make the choice.

29
Numa
Pompilius
the second
king.

In consequence of this determination, the Romans elected Numa Pompilius, an austere philosopher, who had married Tatia, the daughter of Tatius the late king. After the death of his wife, he gave himself entirely up to philosophy and superstition, wandering from solitude to solitude, in search of sacred woods and fountains, which gave the people a great opinion of his sanctity. The philosopher at first rejected the offer of the kingdom; but being at last prevailed upon, he set out for Rome, where he was received with loud acclamations, and had his election unanimously confirmed by the senate.

The reign of Numa is by no means memorable for battles or conquests. He was averse to war; and made it his study to soften the manners of the Romans, rather than to exalt them to superiority over their neighbours. He dismissed the celeres, encouraged agriculture, and divided the citizens into distinct bodies of tradesmen. This last measure he took on purpose to abolish the distinction between Romans and Sabines, which had hitherto rent the city into two factions; and this effectually answered his end: for now all of each particular profession, whether Romans or Sabines, were obliged to associate together, and had each their respective courts and privileges. In this division the musicians held the first rank, because they were employed in the offices of religion. The goldsmiths, carpenters, curriers, dyers, tailors, &c. formed also distinct communities; and were allowed to make by-laws among themselves, to have their own festivals, particular sacrifices, &c.

Though Numa himself is said by Plutarch to have had pretty just notions of the Supreme Being, he nevertheless added innumerable superstitions to those he found in Rome. He divided the ministers of religion into eight classes, appointing to each their office with the greatest precision; he erected a temple to Janus, the symbol of prudence, which was to remain open in time of war, and to be shut in time of peace. Another temple was erected to *Bona Fides*; and he invented a new kind of deities called *Dii Termini*, or

boundaries, which he caused to be placed on the borders of the Roman state, and of each man's particular lands.—The last reformation which Numa undertook, was that of the kalendar. Romulus had divided his year into ten months, which, according to Plutarch, had no certain or equal number of days; some consisting of 20, some of 35, &c. However, by other historians, we are informed that he allotted to March, May, Quintilis, and October, 31 days; to April, June, Sextilis, November, and December 30; making in all 304 days. But Numa being better acquainted with the celestial motions, added to these the two months of January and February. To compose these two months he added 50 days to the 304; and thus made the year answer to the course of the moon. He then took six more from the months that had even days; and added one day merely out of superstition, that the year might prove fortunate; for the pagans looked upon even numbers as unlucky, but imagined odd numbers to be fortunate. However, he could make out no more than 28 for February, and therefore that month was always reckoned unlucky among the Romans. Besides this, he observed the difference between the solar and lunar year to be 11 days; and to remedy the inequality, he added an intercalary month named *Mercedinus* or *Mercedonius*, of 22 days every two years: but as he knew also that the solar year consisted of 365 days 6 hours, he ordered that every fourth year the month Mercedinus should consist of 23 days. The care of these intercalations was left to the priests, who left out or put in the intercalary day or month as they imagined it to be lucky or unlucky; and by that means created such confusion, that the festivals came in process of time to be kept at a season quite opposite to what they had been formerly.

These are all the remarkable transactions of the reign of Numa, which is said to have continued 43 years; though some think that its duration could not be above 15 or 16. His death was followed by a short interregnum; after which Tullus Hostilius, the son or grandson of the famous Herfilius, was unanimously chosen king. Being of a bold and fiery temper, he did not long continue to imitate his peaceful predecessor. The Albans, indeed, soon gave him an opportunity of exercising his martial disposition. Cælius, or, as he is called by Livy, *Cluilius*, who was at the head of the Alban republic, jealous of the growing greatness of Rome, privately commissioned some of the most indigent of his subjects to waste the Roman territory; in consequence of which, a Roman army entered the territories of Alba, engaged the robbers, killed many, and took a great number prisoners. A war soon commenced, in consequence of this, between the two nations; but when the armies came in sight of each other, their ardour cooled, neither of them seeming inclined to come to an engagement. This inaction raised a great discontent in the Alban army against Cluilius; insomuch that he came to a resolution of giving battle to the Romans next morning, or of storming their trenches if they should decline it. Next morning, however, he was found dead in his bed; after which the Albans chose in his stead one Mettus Fuffetius, a man remarkable for his hatred to the Roman name, as Cluilius had been before him. Fuffetius, however, continued in the same

me. state of inactivity as his predecessor, until he received certain intelligence that the Veientes and Fidenates had resolved to destroy both Romans and Albans when they should be weakened by a battle. Fuffetius then resolved to come to an accommodation with the Romans; and, having obtained a conference with Tullus, both seemed equally desirous of avoiding the calamities of war. But, in order to establish the peace on the most perfect foundation, Tullus proposed that all, or at least the chief families in Alba, should remove to Rome; or, in case they were unwilling to leave their native city, that one common council should be established to govern both cities, under the direction of one of the two sovereigns. Fuffetius took aside those who attended him, to consult with them about this proposal; but they, though willing to come to an accommodation with Rome, absolutely refused to leave Alba. The only difficulty remaining, then, was to settle which city should have the superiority; and, as this could not be determined by argument, Tullus proposed to determine it by single combat betwixt himself and Fuffetius. This proposal, however, the Alban general thought proper to decline; and it was at last agreed, that three champions should be chosen out of each camp to decide the difference. This produced the famous combat between the Horatii and Curiatii, by which the sovereignty was decided in favour of Rome. See HORATII.

Tullus now resolved to call the Fidenates to an account for their treacherous behaviour during the war with Alba, and therefore cited them to appear before the senate; but they, conscious of their guilt, refused to appear, and took up arms in conjunction with the Veientes. Fuffetius, in obedience to the orders of Tullus, joined him with the Alban troops; but the day before the battle, he acquainted the principal officers with his design, which was to stand neuter till fortune had declared for one side, and then to join with the conqueror. This design being approved, Fuffetius, during the engagement, retired with his forces to a neighbouring eminence. Tullus perceived his treachery; but dissembling his uneasiness, told his men that Fuffetius had possessed himself of that hill by his order, and that he was from thence to rush down upon the enemy. The Veientes, in the mean time, who had expected that Fuffetius was to join them, were dismayed, and the Romans obtained the victory. After the battle, Tullus returned privately to Rome in the night; and having consulted with the senate about the treachery of Fuffetius, returned to the camp by break of day. He then detached Horatius, who had conquered the three Curiatii, with a chosen body of horse and foot, to demolish Alba, as had been concerted at Rome. In the mean time, he commanded both the Roman and Alban troops to attend him unarmed, but gave private orders to the Romans to bring their swords concealed under their garments. When they were assembled, he laid open the treachery of Fuffetius, and ordered him to be torn in pieces by horses. His accomplices were all put to the sword; and the inhabitants of Alba carried to Rome, where they were admitted to the privileges of citizens, and some of them even admitted to the senate.

Tullus now turned his arms against Fidenæ, which he again reduced under the Roman yoke; and took

Medulia, a strong city of the Latins; after which he waged a successful war with the Sabines, whose union with the Romans seems to have ceased with the time of Numa. This was the last of his martial exploits; after which we hear no more of him, but that he became extremely superstitious in his advanced years, giving ear to many foolish stories, as that it rained stones, that miraculous voices were heard from heaven, &c. and for this he appointed nine days expiatory sacrifices; whence it became a custom to appoint nine days to appease the wrath of the gods as often as men were alarmed with prodigies. As to the manner of his death authors are not agreed. Some tell us that ³³ he was killed by lightning, together with his wife, Tullus, children, and his whole family; while others are of opinion that he was murdered with his wife and children by Ancus Martius who succeeded him. He died after a reign of 33 years, leaving the city greatly increased, but the dominions much the same as they had been in the time of Romulus.

After a short interregnum, Ancus Martius, the grandson of Numa by his daughter Pompilia, and Marcus his relation, was unanimously chosen by the people and senate. Though naturally inclined to war, he began his reign with attempting to restore the ceremonies of Numa, which had been neglected under Tullus Hostilius. He endeavoured also to draw the attention of his people to husbandry and the peaceful arts; advising them to lay aside all sorts of violence, and to return to their former employments. This gained him the affections of his subjects, but brought upon him the contempt of the neighbouring nations. The Latins, pretending that their treaty with Rome was expired, made inroads into the Roman territories. Ancus, after using the ceremonies directed by Numa, took the field with an army consisting entirely of new levied troops, and reduced the cities of Politorium, Tilleria, and Ficana, transplanting the inhabitants to Rome. A new colony of Latins repopled Politorium; but Ancus retook the place next year, and entirely demolished it. He then laid siege to Medulia; which, though it had been ruined by Tullus Hostilius, was now stronger than ever. It submitted after a siege of four years, when Ancus found himself obliged to undertake a second expedition against Ficana, which he had before reduced, as we have already related; and it was not without the utmost difficulty that he reduced it a second time. After this he defeated the Latins in a pitched battle; vanquished the Fidenates, Veientes, and Sabines; and having taken in the hill Janiculum to be included within the walls, and built the port of Ostia, he died in the 24th year of his reign.

Ancus Martius left two sons behind him, one an infant, and the other about 15 years of age. Both of these he put under the tuition of Tarquin, the son of a rich merchant in Corinth, who had fled from that city to secure his wealth from Cypselus tyrant of the place. He settled in Tarquinii, one of the principal cities in Etruria; but finding that he could not there attain to any of the principal posts in the city on account of his foreign extraction, he removed to Rome, where he had been gradually raised to the rank of patrician and senator. The death of Ancus Martius gave him an opportunity of assuming the regal dignity, and setting aside his pupils; and in the beginning of his reign he took

Rome

Death of
Tullus,
children, and his whole family; while others are of opinion that he was murdered with his wife and children by Ancus Martius who succeeded him. He died after a reign of 33 years, leaving the city greatly increased, but the dominions much the same as they had been in the time of Romulus.

34
His warlike
exploits
and death.

35
His sons
supplanted
by Tarquin

32
Alba de-
stroyed,
and the in-
habitants
sent to Rome.

Rome.

36
Tarquin's
success in
war.

took care to strengthen his party in the senate by adding another hundred to that body. These were called *senatores minorum gentium*, because they were chosen out of the plebeians; however, they had the same authority in the senate as the others, and their children were called *patricians*.

Tarquin was not inferior to any of his predecessors either in his inclination or abilities to carry on a war. As soon as he ascended the throne, he recommenced hostilities with the Latins; from whom he took the cities of Apiolæ, Crustumium, Nomentum, and Collatia. The inhabitants of Apiolæ were sold for slaves; but those of Crustumium and Nomentum, who had submitted after their revolt, were treated with great clemency. The inhabitants of Collatia were disarmed, and obliged to pay a large sum of money; the sovereignty of it, in the mean time, being given to Egerius, the son of Arunx, Tarquin's brother; from whence he took the name of *Collatinus*, which he transmitted to his posterity. Corniculum, another city of Latium, was taken by storm, and reduced to ashes. This progress having greatly alarmed the Latins, several of them joined their forces in order to oppose such a formidable enemy; but being defeated in a bloody battle near Fidenæ, they were obliged to enter into an alliance with Rome; upon which the Latins having held a national conference, entered into a league with the Hetrurians, and again took the field with a very numerous army. But Tarquin, having defeated the confederate armies in two very bloody battles, obliged the Latin cities to submit to a kind of dependence on Rome; and, having entered the city in triumph, built the circus maximus with the spoils which he had taken from the enemy.

The war with the Latins was scarce ended, when another commenced with Hetruria. This was accounted the most powerful nation in Italy, and was at that time divided into 12 tribes or *lucomonies*. These appointed a national assembly, in which it was decreed that the whole force of Hetruria should be employed against Tarquin; and if any city presumed only to stand neuter, it should be for ever cut off from the national alliance. Thus a great army was raised, with which they ravaged the Roman territory, and took Fidenæ by the treachery of some of its inhabitants. Tarquin, not being in a condition to oppose them at first, was obliged to submit to the loss occasioned by their ravages for a whole year; after which he took the field with all the forces he could raise. The Roman army was divided into two bodies, one under the king himself, the other commanded by his nephew Collatinus. The latter, having divided his forces in order to plunder the country, was defeated; but Tarquin, in two engagements, vanquished the army which opposed him. He then marched against Fidenæ, where he gained a third battle; after which he took the city. Such of the citizens as were suspected to have been concerned in betraying it to the enemy were whipped to death; the rest were sent into banishment, and their lands divided by lot among the Roman soldiers. Tarquin now hastened to oppose the new army of the Hetrurians before their forces could be properly collected; and having come up with them at Eretum, a place about 10 miles from Rome, defeated them with great slaughter, for which victory he was decreed a

triumph by the senate; while the enemy, disheartened by so many misfortunes, were glad to sue for peace; which Tarquin readily granted, upon the sole condition of their owning his superiority over them. In compliance with this, the Hetrurians sent him all the ensigns of royalty which were in use among them, viz. a crown of gold, a throne of ivory, a sceptre with an eagle on the top of it, a tunic embroidered with gold, and adorned with figures of palm-branches, together with a purple robe enriched with flowers of several colours. Tarquin, however, would not wear these magnificent ornaments till such time as the senate and people had consented to it by an express law. He then applied the regalia to the decoration of his triumph, and never afterwards laid them aside. In this triumph he appeared in a gilt-chariot, drawn by four horses, clothed in a purple robe, and a tunic embroidered with gold, a crown on his head, and a sceptre in his hand, attended by 12 lictors with their axes and fasces.

Tarquin, having now obtained some respite from war, applied himself to the beautifying and ornamenting the city. He built the walls of Rome with hewn stone, and erected those famous common sewers which have deservedly been accounted one of the wonders of the world. Rome at this time contained four hills within its compass, viz. the Palatinus, Tarpeius, Quirinalis, and Caelius. In the valleys between these hills, the rain-water and springs uniting, formed great pools which laid under water the streets and public places. The mud likewise made the way impassable, infected the air, and rendered the city unhealthy. Tarquin undertook to free the city from this nuisance, by conveying off these waters by subterraneous channels into the Tiber. In doing this, it was necessary to cut thro' hills and rocks a channel large enough for a navigable stream, and covered with arches strong enough to bear the weight of houses, which were frequently built upon them, and stood as firm as on the most solid foundations. All these arches were made of hard stone, and neither trouble nor expence were spared to make the work durable. Their height and breadth were so considerable, that a cart loaded with hay could easily pass through them under ground. The expence of constructing these sewers was never so thoroughly understood as when it became necessary to repair them; for then the censors gave no less than 1000 talents to the person appointed for this purpose.

Besides these great works, Tarquin adorned the forum, surrounding it with galleries in which were shops for tradesmen, and building temples in it for the youth of both sexes, and halls for the administration of public justice. He next engaged in a war with the Sabines, on pretence that they had assisted the Hetrurians. Both armies took the field, and came to an engagement on the confines of Sabinia, without any considerable advantage on either side; neither was any thing of consequence done during the whole campaign. Tarquin then, considering with himself that the Roman forces were very deficient in cavalry, resolved to add some new bodies of knights to those already instituted by Romulus. But this project met with great opposition from the superstitious augurs, as the original division of horse into three bodies had been determined by auguries; and Aetius Nævius, the chief of the

Rom
37
Ensigns
him by
Hetrur

38
Builds
common
sewers,
ornam
the city

the diviners at that time, violently opposed the king's will. On this Tarquin, desirous to expose the deceit of these people, summoned Nævius before an assembly of the people, and desired him to show a specimen of his art, by telling the king if what he thought of at that time could be done or not. The augur replied, after consulting his birds, that the thing was very possible. On which Tarquin told him, that he had been thinking whether it was possible to cut a flint with a razor, pulling at the same time a razor and flint from below his robe. This set the people a-laughing; but Nævius gravely desiring the king to try it, he was surprised to find that the flint yielded to the razor; and that with so much ease as to draw blood from his hand. The people testified their surprise by loud exclamations, and Tarquin himself continued to have a great veneration for augurs ever after. A statue of brass was erected to the memory of Nævius, which continued till the time of Augustus; the razor and flint were buried near it, under an altar, at which witnesses were afterwards sworn in civil causes.

This adventure, whatever was the truth of it, caused Tarquin to abandon his design of increasing the number of bodies of horse, and content himself with augmenting the number in each body. He then renewed the war with the Sabines, ravaged their country, defeated them in three pitched battles, obliging them at last to submit to him and put him in possession of their country. In the decline of life he employed himself in further decorating the city, building temples, &c. He was assassinated in his palace, in the 80th year of his age, by the sons of Ancus Martius, whom he had originally deprived of the kingdom.

After the death of Tarquin I. his wife Tanaquil preserved the kingdom to her son-in-law Servius Tullius, by artfully giving out that the king was only stunned, and would soon recover; upon which the sons of Ancus went voluntarily into banishment. The second day after his decease, Servius Tullius heard causes from the throne in the royal robes and attended by the licitors; but as he pretended only to supply the king's place till he should recover, and thought it incumbent on him to revenge the wicked attempt upon his life, he summoned the sons of Ancus to appear before his tribunal; and on their non-appearance, caused them to be declared infamous, and their estates to be confiscated. After he had thus managed matters for some time in such a manner as to engage the affections of the people, the death of Tarquin was published as a thing that had newly happened, and Servius Tullius assumed the ensigns of royalty, having none to dispute the honour with him.

The new king showed himself every way worthy of the throne. No sooner were the Hetrurians informed of Tarquin's death, than they shook off the yoke; but Servius quickly reduced them to obedience, depriving them of their lands, which he shared among the poor Roman citizens who had none. For this he was decreed a triumph by the people, in spite of the opposition of the senate, who could never be brought to approve of his election to the kingdom, though he was soon after legally chosen by the tribes.

After Servius had obtained the sanction of the popular voice, he marched a second time against the revolted Hetrurians; and having again vanquished them,

was decreed another triumph. He then applied himself to the enlarging and adorning the city. To the hills Palatinus, Tarpeius, Quirinalis, Cœlius, and Aventinus, he added the Esquilinus and Viminalis, fixing his own palace on the Esquilinus, in order to draw inhabitants thither. He likewise added a fourth tribe, which he called *Tribus Esquilina*, to those instituted by Romulus. He divided also the whole Roman territory into distinct tribes, commanding that there should be at least one place of refuge in each tribe, situated on a rising ground, and strong enough to secure the effects of the peasants in case of a sudden alarm. These strong-holds he called *pagi*, that is, "villages;" and commanded that each of them should have their peculiar temple, tutelary god, and magistrates. Each of them had likewise their peculiar festival, called *paganalia*; when every person was to pay into the hands of those who presided at the sacrifices a piece of money, the men of one kind, the women of another, and the children of a third. By this means an exact computation was made of the men, women, and children, in each tribe.

In the mean time, his two wards, Lucius Tarquinius and Arunx, the grandchildren of Tarquin, being grown up, in order to secure their fidelity, he married them to his two daughters. And though the elder of these daughters, who was of a mild and tractable disposition, resembled in character the younger of his pupils, as the elder of his pupils did the younger of his daughters, who was of a violent and vicious temper, yet he thought it advisable to give his elder daughter to Tarquin, and the younger to Arunx; for by that means he matched them according to their ages, and at the same time hoped that the elder Tullia's sweet disposition would temper Tarquin's impetuosity, and the younger Tullia's vivacity rouse the indolence of Arunx.

During the public rejoicing for this double marriage, the twelve lucumonies of Hetruria uniting their forces, attempted to shake off the Roman yoke; but were in several battles defeated by Servius, and obliged to submit to him on the same conditions on which they had submitted to his predecessor. For this success Servius was honoured with a third triumph.

The king being thus disengaged from a troublesome war, returned to the pursuit of his political schemes; and put in execution that masterpiece of policy which Rome made use of ever after, and which established a perpetual order and regularity in all the members of the state, with respect to wars, to the public revenues, and the suffrages of the comitia. The public supplies had hitherto been raised upon the people at so much an head, without any distinction of rich and poor; whence it likewise followed, that when levies were made for the war, the rich and poor were equally obliged to take the field, according to the order of their tribe; and as they all served at their own expence, the poorer fort could hardly bear the charges of a campaign. Besides, as the most indigent of the people saw themselves burdened with the same taxes as the rich, they pretended to an equal authority in the comitia: so that the election of kings and magistrates, the making of peace or war, and the judging of criminals, were given up into the hands of a populace who were easily corrupted, and had nothing to lose. Servius formed a project to remedy

Rome.

42
Enlarges
the city, and
adds a
fourth tribe
to those al-
ready in-
stituted.

43
Reforms
the state.

Rome. dy these evils, and put it in execution, by enacting a law, enjoining all the Roman citizens to bring in an account in writing of their own names and ages, and of those of their fathers, wives, and children. By the same law, all heads of families were commanded to deliver in upon oath a just estimate of their effects, and to add to it the places of their abode, whether in town or country. Whoever did not bring in an account of his effects, was to be deprived of his estate, to be beat with rods, and publicly sold for a slave. Servius, from these particular accounts, which might be pretty well relied on, undertook to ease the poor by burdening the rich, and at the same time to please the latter by increasing their power.

44
His division
of the peo-
ple into
classes.

To this end, he divided the Roman people into six classes: the first class consisted of those whose estates and effects amounted to the value of 10,000 drachmæ, or 100,000 ascs of brass; the first way of computing being used by the Greeks, and the latter by the Latins. This class was subdivided into 80 centuries, or companies of foot. To these Servius joined 18 centuries of Roman knights, who fought on horseback; and appointed this considerable body of horsemen to be at the head of the first class, because the estates of these knights, without all doubt, exceeded the sum necessary to be admitted into it. However, the public supplied them with horses; for which a tax was laid upon widows, who were exempt from all other tributes. This first class, including infantry and cavalry, consisted of 98 centuries. The second class comprehended those whose estates were valued at 5700 drachmæ, or 75,000 ascs of brass. It was subdivided into 20 centuries, all foot. To these were added two centuries of carpenters, smiths, and other artificers. In the third class were those who were esteemed worth 5000 drachmæ, or 50,000 ascs. This class was subdivided into 20 centuries. The fourth class was of those whose effects were rated at the value of 500 drachmæ, or 25,000 ascs, and was divided into 20 centuries; to which were added two other centuries of trumpets, and blowers of the horn, who supplied the whole army with this martial music. The fifth class included those only whose whole substance did not amount to more than 1250 drachmæ, or 12,500 ascs; and this class was divided into 30 centuries. The sixth class comprehended all those who were not worth so much as those of the fifth class: they exceeded in number any other class, but nevertheless were reckoned but as one century.

The king drew from these regulations all the advantages he had expected. Levies for the army were no longer raised by tribes, nor were taxes laid at so much a head as formerly, but all was levied by centuries. When, for instance, an army of 20,000 men, or a large supply of money, was wanted for the war, each century furnished its quota both of men and money: so that the first class, which contained more centuries, though fewer men, than all the others together, furnished more men and more money for the public service than the whole Roman state besides. And by this means the Roman armies consisted for the most part of the rich citizens of Rome; who, as they had lands and effects to defend, fought with more resolution, while their riches enabled them to bear the expence of a campaign. As it was but just the king should make the first class amends for the weight laid on it,

he gave it almost the whole authority in public affairs; changing the comitia by curiæ, in which every man gave his vote, into comitia by centuries, in which the majority was not reckoned by single persons, but by centuries, how few soever there might be in a century. Hence the first class, which contained more centuries than the other five taken together, had every thing at its disposal. The votes of this class were first taken; and if the 98 centuries happened to agree, or only 97 of them, the affair was determined; because these made the majority of the 193 centuries which composed the six classes. If they disagreed, then the second, the third, and the other classes in their order, were called to vote, though there was very seldom any occasion to go so low as the fourth class for a majority of votes: so that by this good order Servius brought the affairs of the state to be determined by the judgment of the most considerable citizens, who understood the public interest much better than the blind multitude, liable to be imposed upon, and easily corrupted.

And now the people being thus divided into several orders, according to the census or valuation of their estates, Servius resolved to solemnize this prudent regulation by some public act of religion, that it might be the more respected and the more lasting. Accordingly, all the citizens were commanded to appear, on a day appointed, in the Campus Martius, which was a large plain, lying between the city and the Tiber, formerly consecrated by Romulus to the god Mars. Here the centuries being drawn up in battalia, a solemn lustration or expiatory sacrifice was performed in the name of all the people. The sacrifice consisted of a sow, a sheep, and a bull, whence it took the name of *suovetaurilia*. The whole ceremony was called *lustrum*, *à luendo*; that is, from paying, expiating, clearing, or perhaps from the goddess Lua, who presided over expiations, and to whom Servius had dedicated a temple. This wise king considering, that in the space of five years there might be such alterations in the fortunes of private persons as to entitle some to be raised to an higher class, and reduce others to a lower, enjoined that the census should be renewed every five years. As the census was usually closed by the lustrum, the Romans henceforth began to compute time by lustrums, each lustrum containing the space of five years. However, the lustrums were not always regularly observed, but often put off, though the census had been made in the fifth year. Some writers are of opinion, that Servius at this time coined the first money that had ever appeared at Rome; and add, that the circumstances of the lustrum probably led him to stamp the figures of the animals there slain on pieces of brass of a certain weight.

The government of the city being thus established in so regular a manner, Servius, touched with compassion for those whom the misfortunes of an unsuccessful war had reduced to slavery, thought that such of them as had by long and faithful services deserved and obtained their freedom, were much more worthy of being made Roman citizens, than untractable vagabonds from foreign countries, who were admitted without distinction. He therefore gave the freedmen their choice, either to return to their own country, or continue at Rome. Those who chose to continue there, he divided into four tribes, and settled them within the city;

an

and though they were distinguished from the plebeians by their old name of *liberti*, or *freedmen*, yet they enjoyed all the privileges of free citizens. The senate took offence at the regard which the king showed to such mean people, who had but lately shaken off their fetters; but Servius, by a most humane and judicious discourse, entirely appeased the fathers, who passed his institution into a law, which subsisted ever after.

The wise king, having thus established order among the people, undertook at last to reform the royal power itself; his equity, which was the main spring of all his resolutions, leading him to act contrary to his own interest, and to sacrifice one half of the royal authority to the public good. His predecessors had reserved to themselves the cognizance of all causes both public and private; but Servius, finding the duties of his office too much for one man to discharge well, committed the cognizance of ordinary suits to the senate, and reserved that only of state-crimes to himself.

All things being now regulated at home, both in the city and country, Servius turned his thoughts abroad, and formed a scheme for attaching the Sabines and Latins to the Romans, by such social ties as should be strengthened by religion. He summoned the Latin and Sabine cities to send their deputies to Rome, to consult about an affair of great importance. When they were come, he proposed to them the building of a temple in honour of Diana, where the Latins and Sabines should meet once a year, and join with the Romans in offering sacrifices to that goddess; that this festival should be followed by a council, in which all disputes between the cities should be amicably determined; that there proper measures should be taken to pursue their common interest; and, lastly, in order to draw the common people thither, a fair should be kept, at which every one might furnish himself with what he wanted. The king's design met with no opposition: the deputies only added to it, that the temple should be an inviolable asylum for the united nations; and that all the cities should contribute toward the expence of building it. It being left to the king to choose a proper place for it, he pitched upon the Aventine hill, where the temple was built, and assemblies annually held in it. The laws which were to be observed in these general meetings were engraved on a pillar of brass, and were to be seen in Augustus's time, in the Latin tongue, but in Greek characters.

But now Servius was grown old; and the ambition of Tarquin his son-in-law revived in proportion as the king advanced in years. His wife used her utmost endeavours to check the rashness and fury of her husband, and to divert him from all criminal enterprises; while her younger sister was ever instigating Arunx, who placed all his happiness in a private life, to the most villanous attempts. She was continually lamenting her fate in being tied to such an indolent husband, and wishing she had either continued unmarried, or were become a widow. Similitude of temper and manners, formed, by degrees, a great intimacy between her and Tarquin. At length she proposed nothing less to him than the murdering of her father, sister, and husband, that they two might meet and ascend the throne together. Soon after, they paved their way to an incestuous marriage, he by poisoning his wife, and she her husband; and then had the assurance to ask the king's

and queen's consent to their marriage. Servius and Tarquinia, though they did not give it, were silent, through too much indulgence to a daughter in whom now was their only hope of posterity. But these criminal nuptials were only the first step towards a yet greater iniquity. The wicked ambition of the new-married couple first showed itself against the king: for they publicly declared, that the crown belonged to them; that Servius was an usurper, who, being appointed tutor to Tarquin's grandchildren, had deprived his pupils of their inheritance; that it was high time for an old man, who was but little able to support the weight of public affairs, to give place to a prince who was of a mature age, &c.

The patricians, whom Servius had taken great pleasure in humbling during the whole time of his reign, were easily gained over to Tarquin's party; and, by the help of money, many of the poorer citizens were also brought over to his interest. The king, being informed of their treasonable practices, endeavoured to dissuade his daughter and son-in-law from such proceedings, which might end in their ruin; and exhorted them to wait for the kingdom till his death. But they, despising his counsels and paternal admonitions, resolved to lay their claim before the senate; which Servius was obliged to summon: so that the affair came to a formal process. Tarquin reproached his father-in-law with having ascended the throne without a previous interregnum; and with having bought the votes of the people, and despised the suffrages of the senate. He then urged his own right of inheritance to the crown, and injustice of Servius, who, being only his guardian, had kept possession of it, when he himself was of an age to govern. Servius answered, that he had been lawfully elected by the people; and that, if there could be an hereditary right to the kingdom, the sons of Ancus had a much better one than the grandsons of the late king, who must himself have been an usurper. He then referred the whole to an assembly of the people; which being immediately proclaimed all over the city, the forum was soon filled; and Servius harangued the multitude in such a manner as gained all their affections. They all cried out with one voice, *Let Servius reign; let him continue to make the Romans happy.* Amidst their confused clamours, these words were likewise heard: *Let Tarquin perish; let him die; let us kill him.* This language frightened him so, that he retired to his house in great haste; while the king was conducted back to his palace with the acclamations of the people.

The ill success of this attempt cooled Tarquin's ardent desire of reigning; but his ambition made him act a new part. He undertook to regain the favour of his father-in-law by caresses, submissions, and protestations of a sincere regard and affection for him; inasmuch that the king, who judged of the policy of others from his own, was sincerely reconciled to him, and tranquility re-established in the royal family. But it was not long ere Tarquin, roused by the continual reproaches of his wife, began to renew his intrigues among the senators; of whom he had no sooner gained a considerable party, than he clothed himself in the royal robes, and causing the fasces to be carried before him by some of his domestics, crossed the Roman forum, entered the temple where the senate used to meet, and seated him-

Rome.

self on the throne. Such of the senators as were in the faction he found already in their places (for he had given them private notice to be there early); and the rest, being summoned to assemble in Tarquin's name, made what haste they could to the appointed place, thinking that Servius was dead, since Tarquin assumed the title and functions of king. When they were all assembled, Tarquin made a long speech, reviling his father-in-law, and repeating the invectives against him, which he had so often uttered, calling him a slave, an usurper, a favourer of the populace, and an enemy to the senate and patricians. When he was yet speaking, Servius arrived; and, rashly giving way to the motions of his courage, without considering his strength, drew near the throne, to pull Tarquin down from it. This raised a great noise in the assembly, which drew the people into the temple; but nobody ventured to part the two rivals. Tarquin therefore, being more strong and vigorous, seized the old man by the waist, and, hurrying him through the temple, threw him down from the top of the steps into the forum. The king, who was grievously wounded, raised himself up with some difficulty: but all his friends had abandoned him; only two or three of the people, touched with compassion, lent him their arms to conduct him to his palace.

50
Servius
Tullius
murdered.

As they were leading him on so slowly, the cruel Tullia appeared in the forum, whither she had hastened in her chariot on the first report of what had passed in the senate. She found her husband on the top of the steps of the temple; and, transported with joy, was the first who saluted him king. The example was immediately followed by the senators of Tarquin's party. Nor was this enough for the unnatural daughter: she took aside her husband, and suggested to him, that he would never be safe so long as the usurper of his crown was alive. Hereupon Tarquin instantly dispatched some of his domestics to take away the remains of the unfortunate king's life. The orders for the wicked paricide were no sooner given than Tullia mounted her chariot again, with an air of triumph, to return home. The way to her house was through a narrow street, called *vicus cyprius*, or the *good street*. There the assassins had left the king's body, which was still panting. At this sight, the charioteer, struck with horror, checked his horses, and made a stop: but Tullia forced him to go on; and the blood of the father is said to have dyed the wheels of the chariot, and even the clothes of the inhuman daughter, whence the street was called ever after *vicus sceleratus*.

51
Tarquin II.
a cruel ty-
rant.

The new king proved a most despotic and cruel tyrant; receiving, in the very beginning of his reign, the surname of *proud*, on account of his capricious humour and haughty behaviour. All controversies whatever were decided by himself and his friends; and he banished, fined, and even executed, whom he pleased. The census and lustrum, the division of citizens into classes and centuries, were abolished; and all kinds of assemblies, even those for amusement and recreation, were prohibited, both in town and country. Nay, to such a height did Tarquin carry his insolence and tyranny, that the most virtuous of the senators went into voluntary banishment; while many of those who remained were cut off on various pretences, that the king might enjoy their estates.

Tarquin could not but be sensible of the extreme dan-

ger in which he stood by losing the affections of his people in such a manner. He therefore provided a sufficient number of soldiers, by way of guard, to prevent attempts upon his person; and gave his daughter to Octavius Mamilius, one of the most considerable men among the Latins, in order to strengthen his interest by this foreign alliance, in case of a revolt among his subjects. Mamilius accordingly procured many friends to his father-in-law, but he had like to have lost them again by his haughty behaviour. He had desired the Latins to call a national council at Ferentinum, where he would meet them on a day appointed by himself. The Latins accordingly met; but after waiting for several hours, Tarquin did not appear. On this, one Turnus Herdonius, an enterprising and eloquent man, who hated Tarquin, and was jealous of Mamilius, made a speech, in which he inveighed against the haughty behaviour of Tarquin, set forth the contempt which he had put upon the Latins, and concluded with desiring the council to break up and return home without taking any further notice of him. Mamilius, however, prevailed upon them to return the day following; when Tarquin made his appearance, and told the assembly that his design in calling them together was to claim his right of commanding the Latin armies, which he said was derived from his grandfather, but which he desired to be confirmed to him by them. These words were scarce out of his mouth, when Herdonius, rising up, entered into a detail of Tarquin's tyranny and arbitrary behaviour at Rome, which, he said, the Latins would soon feel in an equal degree, if they complied with Tarquin's demand. To this speech the king made no reply at that time, but promised to answer him next day. In the mean time, however, he bribed the domestics of Herdonius to admit among his baggage a large quantity of arms: and then, telling the Latins that Herdonius's opposition proceeded only from Tarquin's having refused him his daughter in marriage, accused him of having laid a plot to cut off all the deputies there present, and to usurp a jurisdiction over the Latin cities; as a proof of which he appealed to the arms hid among the baggage of Herdonius. The accused, conscious of his innocence, desired that his baggage might be searched; which being accordingly done, and the arms found, he was hurried away without being allowed to make any defence, and thrown into a basin at the head of the spring of Ferentinum, where a hurdle being laid upon him, and stones laid upon the hurdle, he was pressed down into the water and drowned.

52
His infa-
mous at-
tachment
to destroy
Herdonius.

In consequence of this monstrous treachery, Tarquin was looked upon by the Latins as their deliverer, and declared general of the Latin armies; soon after which, the Hernici and two tribes of the Volsci entered into an alliance with him on the same terms. In order to keep these confederates together, Tarquin, with their consent, erected a temple to Jupiter Latialis on an hill near the ruins of Alba, where he appointed certain feasts called *Feria Latinae* to be held on the 27th of April, where the several nations were to sacrifice together, and on no account to commit any hostilities against each other during their continuance. The king then proceeded to make war on the rest of the Volsci who had refused to enter into an alliance with him. Some depredations which they had committed in the territo-

53
Instituted
the Fe-
Latinae.

ries of the Latins served for a pretence to begin the war; but as Tarquin had no confidence in the Romans, his army was composed only of a small body of them who were incorporated among the Latin auxiliaries. However, he defeated the enemy, took one of their cities by storm, and gave the booty to his soldiers. He next turned his arms against the Sabines, whom he entirely defeated in two engagements, and made the whole nation tributary; for which exploits he decreed himself two triumphs, and on his return to Rome he employed the populace in finishing the sewers and circus which had been begun by his grandfather Tarquin I.

In the mean time, the persecutions of Tarquin against his own subjects daily drove some of the most considerable into banishment. A great number of patricians took refuge in Gabii, a city of Latium about 13 miles from Rome; where the inhabitants, touched with compassion for their misfortunes, not only received them with kindness, but began a war with Tarquin on their account. The Gabini seem to have been the most formidable enemies whom the Romans had hitherto met with; since Tarquin was obliged to raise a prodigious bulwark to cover the city on the side of Gabii. The war lasted seven years; during which time, by the mutual devastations committed by the two armies, a great scarcity of provisions took place in Rome. The people soon grew clamorous; and Tarquin being unable either to quiet them, or to reduce the Gabini, fell upon the following dishonourable and treacherous expedient. His son Sextus Tarquinius pretended to be on very bad terms with his father, and openly inveighed against him as a tyrant; on which he was proclaimed a rebel, and publicly beaten in the forum. This being reported at Gabii, by persons sent thither on purpose, the inhabitants became very desirous of having Sextus among them; and accordingly he soon went thither, having previously obtained a solemn promise from the inhabitants never to deliver him up to his father. Here he made frequent inroads into the Roman territories, and always came back laden with spoil, his father sending against him only such weak parties as must infallibly be worsted. By this means he soon came to have such a high degree of credit among the Gabini, that he was chosen general of their army, and was as much master at Gabii as Tarquin was at Rome. Finding then that his authority was sufficiently established, he dispatched a slave to his father for instructions; but the king, unwilling to return an explicit answer, only took the messenger into the garden, where he struck off the heads of the tallest poppies. Sextus understood that by this hint the king desired him to put to death the leading men in the city of Gabii, which he immediately put in execution; and while the city was in confusion on account of this massacre, he opened the gates to his father, who took possession of the city with all the pride of a conqueror.—The inhabitants dreaded every thing from the haughty tyranny of the Roman monarch; however, on this occasion he consulted his policy rather than his revenge; granted them their life, liberty, and estates, and even entered into a treaty of alliance with them. The articles were written on the hide of an ox, which was still to be seen in the time of Augustus, in the temple of Jupiter Fidius. After this, however, he made his son Sextus king of Gabii; sending off also

his two other sons, Titus and Arunx, the one to build a city at Signia, the other at Circæum, a promontory of the Tyrrhene sea, and both these to keep the Volsci in awe.

For some time Tarquin now enjoyed a profound peace; the Romans, being accustomed to oppression and the yoke of an imperious master, making no opposition to his will. During this interval Tarquin met with the celebrated adventure of the Sibyl; † See Sibyl's whose books were ever afterwards held in high estimation at Rome, and Tarquin appointed two persons of distinction to take care of them. These were called *Duumviri*; but their number was afterwards increased to 10, when they were called *Decemviri*; and then to 15, when they were termed *Quindecemviri*. At this time also the written civil law had its origin among the Romans; all the statutes enacted by the kings being collected into one body; which, from Papirius the name of the collector, was called the *Papirian law*. The temple of the Capitol was also finished; for which purpose the most skilful architects and workmen were brought from Hetruria, the populace being obliged to serve them in the most laborious parts.

We now come to the important revolution which put an end to the regal power at Rome, and introduced a new form of government, to which this city is allowed to owe the greatest part of her grandeur. Tarquin, as we have already seen, had left himself no friends among the rich citizens, by reason of the oppression under which he made them labour; and the populace were equally disaffected on account of their being obliged to labour in his public works. Among the many persons of distinction who had been sacrificed to the avarice or suspicions of Tarquin, was one M. Junius, who had married the daughter of Tarquin I. This nobleman had a son named *L. Junius Brutus*, who escaped the cruelty of the tyrant by pretending to be an idiot, which part he had ever since continued to act. Soon after the finishing of the works abovementioned, a violent plague happening to break out at Rome, Tarquin sent his sons Titus and Arunx to consult the oracle of Delphi; and the princes took Brutus along with them, to divert themselves with his pretended folly by the way. Brutus chose for his offering to the Delphic Apollo a stick of elder; which occasioned much laughter. However, he had the precaution to inclose a rod of gold within the stick; and to this probably it was owing, that the priestess gave the princes the following riddle, that he who should first kiss his mother should succeed Tarquin in the government of Rome. This answer had been given to their inquiries concerning the succession; upon which the two brothers either drew lots which of them should kiss their mother at their return, or agreed to do it at once, that both might reign jointly; but Brutus, imagining the oracle had another meaning, fell down and kissed the earth, the common mother of all living. This, in all probability, the priestess had meant; and had given the answer on purpose to have another proof of Brutus's ingenuity, which had already discovered itself, by his offering the elder stick.

On the return of the princes to Rome, they found their father engaged in a war with the Rutuli. The treasury being exhausted by the sums which Tarquin had expended in his public works, he had marched to

Rome.

Ardea, the capital of that nation, which lay about 20 miles from Rome, in hopes of taking it without opposition. Contrary to his expectation, however, he was obliged to besiege it in form; and this constrained him to lay a heavy tax upon his subjects, which increased the number of malcontents, and disposed every thing for a revolt. As the siege was carried on very slowly, the general officers frequently made entertainments for one another in their quarters. One day, when Sextus Tarquinius was entertaining his brothers, the conversation happened to turn upon their wives: every one extolled the good qualities of his own; but Collatinus bestowed such extravagant praises on his Lucretia, that the dispute ended in a kind of quarrel. It was then resolved that they should mount their horses and surprise their wives by their unexpected return. The king's daughters-in-law were employed in feasting and diversion, and seemed much disconcerted by the appearance of their husbands; but Lucretia, though the night was far advanced, was found, with her maids about her, spinning and working in wool. She was not at all discomposed by the company whom her husband brought with him, and they were all pleased with the reception she gave them. As Lucretia was very beautiful, Sextus Tarquinius conceived a passion for her, which resolving to satisfy at all events, he soon returned to Collatia in the absence of Lucretia's husband, and was entertained by her with great civility and respect. In the night-time he entered Lucretia's apartment, and threatened her with immediate death if she did not yield to his desires. But finding her not to be intimidated with this menace, he told her, that, if she still persisted in her refusal, he would kill one of her male slaves, and lay him naked by her when she was dead, and then declare to all the world that he had only revenged the injury of Collatinus. On this the virtuous Lucretia (who, it seems, dreaded prostitution less than the infamy attending it) submitted to the desires of Sextus; but resolved not to outlive the violence which had been offered her. She dressed herself in mourning, and took a poniard under her robe, having previously wrote to her husband to meet her at her father Lucretius's house, where she refused to discover the cause of her grief except in a full assembly of her friends and relations. Here, addressing herself to her husband Collatinus, she acquainted them with the whole affair; exhorted them to revenge the injury; and protested that she would not outlive the loss of her honour. Every one present gave her a solemn promise that they would revenge her quarrel; but while they endeavoured to comfort her, she suddenly stabbed herself to the heart with the dagger which she had concealed under her robe. See CHASTITY.

57
Lucretia,
ravished by
Sextus Tar-
quinius,
kills her-
self.

This extravagant action inflamed beyond measure the minds of all present. Brutus, laying aside his pretended folly, drew the bloody dagger out of Lucretia's body; and, showing it to the assembly, swore by the blood upon it that he would pursue Tarquin and his family with fire and sword: nor would he ever suffer that or any other family to reign in Rome. The same oath was taken by all the company; who were so much surprised at the apparent transition of Brutus from folly to wisdom, that they did whatever he desired them.—By his advice the gates of the city were shut, that no body might go out of it to inform Tarquin of what

was going forward; which, as Lucretius had been left governor of the city by Tarquin, was put in execution without difficulty. The corpse of Lucretia was then exposed to public view; and Brutus having made a speech to the people, in which he explained the mystery of his conduct in counterfeiting folly for many years past, proceeded to tell them that the patricians were come to a resolution of deposing the tyrant, and exhorted them to concur in the same design. The people testified their approbation, and called out for arms; but Brutus did not think proper to trust them with arms till he had first obtained a decree of the senate in favour of the design. This was easily procured: the senate enacted that Tarquin had forfeited all the prerogatives belonging to the regal authority, condemned him and all his posterity to perpetual banishment, and devoted to the gods of hell every Roman who should hereafter, by word or deed, endeavour his restoration; and this decree was unanimously confirmed by the curiae.

Tarquin being thus deposed, the form of government became the next object. Lucretius was for the present declared *Interrex*; but Brutus being again consulted, declared, that though it was by no means proper for the state to be without supreme magistrates, yet it was equally necessary that the power should not be centered in one man, and that it should not be perpetual. For this reason he proposed, that two magistrates, called *consuls*, should be elected annually; that the state should thenceforth have the name of *republic*; that the ensigns of royalty should be abolished; and that the only ensigns of consular dignity should be an ivory chair, a white robe, and 12 lictors for their attendants. However, that he might not utterly abolish the name of *king*, he proposed that this title should be given to him who had the superintendency of religious matters, who should thenceforth be called *rex sacrorum*, or *king of sacred things*.

This scheme of Brutus being approved of, Brutus and Collatinus were proposed by Lucretius as the two first consuls, and unanimously accepted by the people, who thought it was impossible to find more implacable enemies to the Tarquins. They entered on their office in the year 508 B. C.; and Tullia, perceiving that now all was lost, thought proper to leave the city, and retire to her husband at Ardea. She was suffered to depart without molestation, though the populace hooted at her, and cursed her as she went along. Tarquin, in the mean time, being informed by some who had got out of Rome before the gates were shut, that Brutus was raising commotions to his prejudice, returned in haste to the city, attended only by his sons and a few friends; but, finding the gates shut, and the people in arms on the walls, he returned again to the camp: but here again, to his surprise, he found that the consuls had taken the opportunity of gaining over the army to their interest; so that, being refused admittance into the camp also, he was forced to fly for refuge, at the age of 76, with his wife and three sons, to Gabii, where Sextus had been made king. Here he continued for some time: but not finding the Latins very forward to revenge his cause, he retired into Etruria, where, being the country of his mother's family, he hoped to find more friends, and a readier assistance for attempting the recovery of his throne.

Rome

58
Tarquin
deposed

59
The fo
of gove
ment o
ged.

60
Tullia
leaves
Rome

The

The Romans now congratulated themselves on their happy deliverance from tyranny. However, as Tarquin had by his policy procured himself many friends abroad, these now became enemies to the Roman name; and, by the defection of their allies, the Roman dominions were left in much the same state as they had been in the time of Romulus. The territory of Rome had always been confined to a very narrow compass. Though almost constantly victorious in war for 243 years, they had not yet gained land enough to supply their city with provisions. The main strength of the state lay in the number of the citizens of Rome; which the custom of transplanting the inhabitants of the conquered cities thither had so prodigiously increased, that it put the Romans in a condition of usurping the authority over other nations, the most inconsiderable of which had an extent of territory far exceeding theirs. By frequent depredations and incursions they so harassed the petty states of Latium and Hetruria, that many of them were constrained to enter into treaties with Rome, by which they obliged themselves to furnish her with auxiliaries whenever she should be pleased to invade and pillage the lands of her other neighbours. Submissions of this kind the Romans called *making alliances* with them, and these useful alliances supplied the want of a larger territory; but now, upon the change of her government, all the allies of Rome forsook her at once, and either stood neuter, or espoused the cause of the banished king; so that she was now obliged to maintain her liberties as she best might.

The new consuls in the mean time took the most effectual methods they could for securing the liberties of the republic. The army which had been employed in the siege of Ardea marched home under the conduct of Herminius and Horatius, who concluded a truce with the Ardeates for 15 years. The consuls then again assembled the people by centuries, and had the decree of Tarquin's banishment confirmed; a *rex sacrorum* was elected to preside at the sacrifices, and many of the laws of Servius Tullius were revived, to the great joy of the people, who were thus restored to their ancient right of voting in all important affairs. Tarquin, however, resolved not to part with his kingdom on such easy terms. Having wandered from city to city in order to move compassion, he at length made Tarquinii the seat of his residence; where he engaged the inhabitants to send an embassy to Rome, with a modest, submissive letter from himself, directed to the Roman people. The ambassadors represented in such strong terms to the senate how reasonable it was to let the king be heard before he was condemned, and the danger which threatened the state from the neighbouring powers if that common justice were refused, that the consuls inclined to bring these agents before the people, and to leave the decision thereof to the curiæ; but Valerius, who had been very active in the revolution, strenuously opposed this, and by his influence in the senate got it prevented. As that illustrious body had been greatly thinned by the murders committed by Tarquin, new members were elected from among the knights, and the ancient number of 300 again completed. The old senators had been called *patres*, or "fathers;" and as the names of the new ones were now written on the same roll, the whole body received the name of *patres conscripti*.

The old king was not to be foiled by a single at-

tempt. He prevailed on the inhabitants of Tarquinii to send a second embassy to Rome, under pretence of demanding the estates of the exiles, but with private instructions to get the consuls assassinated. The restoration of the estates of the exiles was opposed by Brutus, but Collatinus was for complying with it; whereupon Brutus accused his colleague of treachery, and of a design to bring back the tyrant. The matter was then referred to the people, where it was carried by one vote in favour of the Tarquins. But whilst the people were employed in loading carriages with the effects of the exiles, and in selling what could not be carried off, the ambassadors found means to draw some of the nearest relations of the consuls into a plot with them. These were three young noblemen of the Aquilian family (the sons of Collatinus's sister), and two of the Vitellii (whose sister Brutus had married); and these last engaged Titus and Tiberius, the two sons of Brutus, in the same conspiracy. They all bound themselves by solemn oaths, with the dreadful ceremony of drinking the blood of a murdered man and touching his entrails. They met at the house of the Aquilii, where they wrote letters to Tarquin and gave them to the ambassadors. But though they used all imaginable precaution, their proceedings were overheard by one Vindicius a slave, who immediately communicated the whole to Valerius; upon which all the criminals were apprehended. Brutus stood judge over his own sons; and, notwithstanding the intercession of the whole assembly, and the tears and lamentations of his children, commanded them to be beheaded; nor would he depart till he saw the execution of the sentence. Having performed this piece of heroic barbarity, he quitted the tribunal, and left Collatinus to perform the rest. Collatinus, however, being inclined to spare his nephews, allowed them a day to clear themselves; and caused Vindicius, the only witness against them, to be delivered up to his masters. This roused the indignation of the people in general, especially of Valerius, who had promised to protect the witness, and therefore he refused to deliver him up to the lictors. The multitude called aloud for Brutus to return; which when he had done, he told them that he had executed his two sons in consequence of his own paternal authority over them, but that it belonged to the people to determine the fate of the rest. Accordingly, by a decree of the curiæ; all the delinquents suffered as traitors except the ambassadors, who were spared out of respect to their character. The slave Vindicius had his liberty granted him; and was presented with 25,000 ascs of brass, in value about L. 80 : 14 : 7 of our money. The decree for restoring the estates of the exiled Tarquins was annulled, their palaces were destroyed, and their lands divided among the indigent people. The public only retained a piece of ground, near the Campus Martius, which the king had usurped. This they consecrated to Mars, and it afterwards became a common field where the Roman youth exercised themselves in running and wrestling. But after this consecration, the superstitious Romans scrupled to use the corn which they found there ready reaped to their hands: so that, with some trees, it was thrown into the Tiber; and the water being low, it stopped in the middle of the river, and began to form a fine island named afterwards *Insula Sacra*.

The behaviour of Brutus towards his two sons struck such

Rome.

63

A conspiracy formed in his favour.

64

Brutus causes two of his own sons to be beheaded.

62
Tarquin writes to the Roman people.

Rome.

65
Deposes his
colleague
Collatinus.

Such a terror into the Romans, that scarce any person durst oppose him; and therefore, as he hated Collatinus, he openly accused him before the people, and without ceremony deposed him from the consulship, banishing him at the same time from Rome. The multitude acquiesced in every thing he said, and refused to hear Collatinus speak in his own defence; so that the consul was on the point of being driven out with ignominy and disgrace, when Lucretius interposed, and prevailed upon Brutus to allow his colleague quietly to resign the fasces, and retire of his own accord from the city. Brutus then, to remove all suspicions of personal enmity, procured him a present of 20 talents out of the public treasury, to which he added five of his own. Collatinus then retired to Lavinium, where he lived in peace, and at last died of old age.

66
The Volsci
and Tar-
quinien-
declare in
favour of
Tarquin.

67
Brutus and
Arunx kill
each other.

After the abdication of Collatinus, Valerius was chosen in his room; and as his temper agreed much better with Brutus than that of Collatinus, the two consuls lived in great harmony. Nothing, however, could make the dethroned king forego the hope of recovering his kingdom by force. He first engaged the Volsci and Tarquinienenses to join their forces in order to support his rights. The consuls marched out without delay to meet them. Brutus commanded the horse and Valerius the foot, drawn up in a square battalion. The two armies being in sight of each other, Brutus advanced with his cavalry, at the same time that Arunx, one of Tarquin's sons, was coming forward with the enemy's horse, the king himself following with the legions. Arunx no sooner discovered Brutus, than he made towards him with all the fury of an enraged enemy. Brutus advanced towards him with no less speed; and as both were actuated only by motives of hatred, without thoughts of self-preservation, both of them were pierced through with their lances. The death of the two generals served as a prelude to the battle, which continued with the utmost fury till night, when it could not be known which side had got the victory, or which had lost the greatest number of men. A report was spread, however, that a voice had been heard out of a neighbouring wood, declaring the Romans conquerors; and this, probably a stratagem of Valerius, operated so powerfully on the superstitious minds of the Volsci, that they left their camp in confusion, and returned to their own country. It is said that Valerius, having caused the dead to be numbered, found that the Volsci had lost 11,300 men, and the Romans only one short of that number.

Valerius being left without a colleague in the consulship, and having for some reasons delayed to choose one, began to be suspected by the people of aspiring at the sovereignty; and these suspicions were in some measure countenanced by his building a fine house on the steep part of the hill Palatinus, which overlooked the forum, and was by them considered as a citadel. But of this Valerius was no sooner informed, than he caused this house to be pulled down, and immediately called an assembly of the people for the election of a consul, in which he left them entirely free. They chose Lucretius; and, being ashamed of having suspected Valerius, they complimented him with a large ground-plot in an agreeable place, where they built him a house. The new consul died a few days after his promotion, so that Valerius was once more left sole go-

vernor. In the interval betwixt the death of Lucretius and the choice of another consul, Valerius gave the people so many striking proofs of his attachment to their interest, that they bestowed upon him the surname of *Poplicola* or "popular;" nor was he ever called by another name afterwards.

When Poplicola's year of consulship expired, the Romans thought fit, in consequence of the critical situation of affairs, to elect him a second time, and joined with him T. Lucretius, the brother of the famous Lucretia. They began with restoring the census and lustrum; and found the number of Roman citizens, at or above the age of puberty, to amount to 130,000. As they apprehended an attack from the Latins on account of Tarquin, they were at great pains to fortify Siquirium or Singluria, an important post on that side. Contrary to their expectations, however, the Latins remained quiet; but an haughty embassy was received from Porfena king of Clusum in Etruria, commanding them either to take back the Tarquins to Rome, or to restore them their estates. To the first of these demands the consuls returned an absolute refusal: and, as to the second, they answered, that it was impracticable; a part of those estates having been consecrated to Mars, and the rest divided among indigent people, from whom they could not be recovered. The imminent danger which now threatened the city, procured Valerius the honour of a third consulship; and with him was joined Horatius Pulvilius, who had enjoyed the dignity for a few months before in the interval betwixt the death of Lucretius and the expiration of the first consulate.

While the Romans were making the most vigorous preparations for defence, Porfena, attended by his son Arunx and the exiles, marched towards the city at the head of a formidable army, which was quickly joined by a considerable body of Latins under Mamilius, the son-in-law of Tarquin. The consuls and the senate took all imaginable care to supply the common people with provisions, lest famine should induce them to open the gates to Tarquin; and they desired the country people to lodge their effects in the fort Janiculum, which overlooked the city, and which was the only fortified place possessed by the Romans on that side the Tiber. Porfena, however, soon drove the Romans out of this fort; upon which the consuls made all their troops pass the river, and drew them up in order of battle to defend the bridge, while Porfena advanced to engage them. The victory was a long time doubtful; but at last the Romans fled. Horatius Cocles, nephew to the consul, with Sp. Lartius and T. Herminius, who had commanded the right-wing, posted themselves at the entrance of the bridge, and for a long time bravely defended it: but at last, the defensive arms of Lartius and Herminius being broken, they retired; and then Horatius desiring them to advise the consuls from him to cut the bridge at the other end, he for a while sustained the attack of the enemy alone. At last, being wounded in the thigh, and the signal given that the bridge was almost broken down, he leaped into the river, and swam across it through a shower of darts. The Romans, in token of gratitude for this eminent service, erected a statue to him in the temple of Vulcan, gave him as much land as he himself with one yoke of oxen could plough in one day; and each of the inhabitants

Rom

68

Porfena
vades the
Roman
territories.

69

And de
feats the
army.

70

Bravery of
Horatius
Cocles.

bitants, to the number of 300,000, gave him the value of as much food as each consumed in a day. But notwithstanding all this, as he had lost one eye, and from his wounds continued lame throughout the remainder of his life, these defects prevented his ever being raised to the consulate, or invested with any military command.

The city was not yet fully invested; but as it was very difficult to find provisions for such a multitude, the inhabitants soon began to be in want. Porfena being informed of their difficulties, told them that he would supply them with provisions if they would take back their old masters; but to this they replied, that hunger was a less evil than slavery and oppression. The constancy of the Romans, however, was on the point of failing, when a young patrician, named *Mutius Cordus*, with the consent of the senate and consuls, undertook to assassinate Porfena. He got access to the *Hetrurian* camp, disguised like a peasant, and made his way to the king's tent. It happened to be the day on which the troops were all reviewed and paid; and Porfena's secretary, magnificently dressed, was sitting on the same tribunal with the king. *Mutius*, mistaking him for Porfena, instantly leaped upon the tribunal and killed him. He then attempted to make his escape; but being seized and brought back, he owned his design; and with a countenance expressive of desperate rage and disappointment, thrust his hand which had missed the blow into a pan of burning coals which stood by, and there held it for a considerable time. On this, Porfena, changing his resentment into admiration, granted him his life and liberty, and even restored him the dagger with which he intended to have stabbed himself. *Mutius* took it with his left hand, having lost the use of the other; and from this time had the name of *Scævola*, or "left-handed." He then, in order to induce Porfena to break up the siege, invented a story that 300 young Romans, all of them as resolute as himself, had sworn to take away the life of the king of *Hetruria*, or to perish in the attempt. This had the desired effect; Porfena sent deputies to Rome, whose only demands were, that the Romans should restore the estates of the *Tarquins*, or give them an equivalent, and give back the seven small towns which had been formerly taken from the *Veientes*. The latter of these demands was cheerfully complied with; but the former was still refused, until Porfena should hear the strong reasons they had to urge against it. A truce being agreed on, deputies were sent to the *Hetrurian* camp to plead the Roman cause against the *Tarquins*, and with them ten young men, and as many virgins, by way of hostages for performing the other article.

The reception which Porfena gave the deputies raised the jealousy of the *Tarquins*; who still retaining their ancient pride, refused to admit Porfena for a judge between them and the Romans. But the king, without any regard to their opposition, resolved to satisfy himself, by an exact inquiry, whether the protection he had given the *Tarquins* was just. But while the cause was ready to be opened before the Roman deputies, news were brought that the young women whom the Romans had sent as hostages had ventured to swim across the *Tiber*, and were returned to Rome. They had gone to bathe in the river, and *Clælia* happening to turn her eyes towards her native city, that

fight raised in her a desire of returning to it. She therefore ventured to swim across the river; and having encouraged her companions to follow her, they all got safe to the opposite shore, and returned to their fathers' houses. The return of the hostages gave the consul *Poplicola* great uneasiness; he was afraid lest this rash action might be imputed to want of fidelity in the Romans. To remove therefore all suspicions, he sent a deputation to the *Hetrurian* camp, assuring the king that Rome had no share in the foolish attempt of the young women; and promising to send them immediately back to the camp from whence they had fled. Porfena was easily appeased; but the news of the speedy return of the hostages being known in the camp, the *Tarquins*, without any regard to the truce, or respect to the king their protector, lay in ambush on the road to surprise them. *Poplicola* having put himself at the head of the Roman troops who escorted them, sustained the attack of the *Tarquins*, though sudden and unexpected, till his daughter *Valeria* rode full speed to the *Hetrurian* camp, and gave notice of the danger her father and companions were in; and then *Arunx*, the king's son, flying with a great body of cavalry to their relief, put the aggressors to the rout.

This notorious piece of treachery in the *Tarquins* gave Porfena strong suspicions of the badness of their cause. He therefore assembled the chief commanders of the *Hetrurians*; and having heard in their presence the complaints of the Romans, and the justification of their proceedings against the *Tarquins*, he was so struck with horror at the recital of the crimes the *Tarquins* were charged with, that he immediately ordered them to leave his camp; declaring, that he renounced his alliance with them, and would no longer continue the hospitality he had shown them. He then commanded the ten young virgins to be brought before him, and inquired who was the first author and chief manager of the enterprise. They all kept silence, till *Clælia* herself, with an air of intrepidity, confessed, that she alone was guilty, and that she had encouraged the others by her advice. Upon this the king, extolling her resolution above the bravery of *Horatius* and the intrepidity of *Mutius*, made her a present of a fine horse, with sumptuous furniture. After this he concluded a peace with the Romans, and restored to them all their hostages; declaring, that their bare word was to him a sufficient security for the performance of the articles.

And now Porfena being about to return to *Clusium*, gave, before his departure, a further testimony of his respect and friendship for the Romans. He knew that Rome was greatly distressed for want of provisions; but being afraid to offend the inhabitants by relieving them in a direct manner, he ordered his soldiers to leave behind them their tents and provisions, and to carry nothing with them but their arms. As his camp abounded with all sorts of provisions, Rome was hereby much relieved in her wants. The moveables and corn of the *Hetrurians* were sold by auction to private persons; and on this occasion the Romans took up the custom of making a proclamation by an herald, whenever any effects belonging to the public were to be sold, in the following words, *These are Porfena's goods*. The design of this was to preserve the memory of that prince's kindness. The senate, not satisfied with this, erected a statue of the king near the comitium, and sent an

Rome.

73
Treachery
of the Tar-
quins.74
Porfena a-
bandons
their cause.75
Conclud-
a peace
with the
Romans,
and re-
lieves them.

embassy.

Rome.

embassy to him with a present of a throne adorned with ivory, a sceptre, a crown of gold, and a triumphal robe.

76
The Latins
declare for
Tarquin.

Thus the Romans escaped the greatest danger they had hitherto been in. However, they did not yet enjoy tranquillity. The Sabines revolted, and continued the war for some time with great obstinacy: but being defeated in several engagements, they were at last obliged to submit; and scarce was this war ended, when another began with the Latins, who now declared for king Tarquin. Before they began this war, however, an embassy was sent to Rome, the purport of which was, that the Romans should raise the siege of Fidenæ which had revolted, and receive the Tarquins; who, on their part, should grant a general amnesty. The ambassadors were to allow the Romans a whole year to consider on these overtures; and to threaten them with a war in case they refused to comply with them. The chief view of Tarquin and his partisans in promoting this embassy was, to lay hold of that opportunity to raise a sedition in the city. To the ambassadors, therefore, of the Latins, he joined some of his own emissaries, who, on their arrival in the city, found two sorts of people disposed to enter into their measures; to wit, the slaves, and the meaner citizens.

77
A danger-
ous con-
spiracy
against the
state.

The slaves had formed a conspiracy the year before to seize the Capitol, and set fire to the city in several quarters at the same time. But the plot being discovered, those who were concerned in it had been all crucified, and this execution had highly provoked the whole body of slaves. As to the meaner citizens, who were for the most part overwhelmed with debt, and cruelly used by their creditors, they were well apprised that there could happen no change in the government but to their advantage. These were the conspirators pitched upon, and to them were given the following parts to act: the citizens were to make themselves masters of the ramparts and gates of the city, at an appointed hour of the night; and then to raise a great shout as a signal to the slaves, who had engaged to massacre their masters at the same instant: the gates of the city were then to be opened to the Tarquins, who were to enter Rome while it was yet reeking with the blood of the senators. The conspiracy was ripe for execution, when Tarquin's principal agents, Publius and Marcus, both of his own name and family, being terrified with frightful dreams, had not courage enough to proceed in their design till they had consulted a diviner. However, they did not discover to him the conspiracy; but only asked him in general terms, what success they might expect in a project they had formed? The soothsayer, without the least

78
How disco-
vered.

hesitation, returned the following answer: *Your project will end in your ruin; disburden yourselves of so heavy a load.* Hereupon the Tarquins, fearing lest some of the other conspirators should be beforehand with them in informing, went immediately to S. Sulpitius, the only consul then at Rome, and discovered the whole matter to him. The consul greatly commended them, and detained them in his house, till, by private inquiries, he was assured of the truth of their depositions. Then he assembled the senate, and gave the Latin ambassadors their audience of leave, with an answer to their proposals; which was, that the Romans would neither receive the Tarquins, nor raise the siege of Fidenæ, being all

to a man ready to sacrifice their lives in defence of their liberties, and willing to undergo any dangers rather than submit to the government of a tyrant.

The ambassadors being dismissed with this answer, and conducted out of the city, Sulpitius laid open to the fathers the dreadful conspiracy. It struck them with horror: but they were all at a loss in what manner they should apprehend and punish the guilty; since, by the law of Poplicola, there was an appeal to the people in all capital cases; and the two witnesses, who were strangers, might be excepted against by Roman citizens. In this perplexity they left the whole conduct of this critical affair to Sulpitius; who took a method which he thought would equally serve to prove the guilt and punish the guilty. He engaged the two informers to assemble the conspirators, and to appoint a rendezvous at midnight in the forum, as if they designed to take the last measures for the execution of the enterprise. In the mean time he used all proper means to secure the city, and ordered the Roman knights to hold themselves ready, in the houses adjoining to the forum, to execute the orders they should receive. The conspirators met at the time and place appointed by the two Tarquins; and the knights, upon a signal agreed on beforehand, invested the forum, and blocked up all the avenues to it so closely, that it was impossible for any of the conspirators to make their escape. As soon as it was light, the two consuls appeared with a strong guard on the tribunal; for Sulpitius had sent to his colleague Manius, who was besieging Fidenæ, desiring him to hasten to the city with a chosen body of troops. The people were convened by curiæ, and acquainted with the conspiracy which had been formed against the common liberty. The accused were allowed to make their defence, if they had any thing to offer against the evidence; but not one of them denying the fact, the consuls repaired to the senate, where sentence of death was pronounced against the conspirators, in case the people approved it.

This decree of the senate being read to and approved by the assembly, the people were ordered to retire, and the conspirators were delivered up to the soldiers, who put them all to the sword. The peace of Rome was thought sufficiently secured by this stroke of severity; and therefore, though all the conspirators were not punished with death, it was judged proper not to make any further inquiries. The two informers were rewarded with all the privileges of Roman citizens, 100,000 ases, and 20 acres of land. Three festival-days were appointed for expiations, sacrifices, and public games, by way of thanksgiving to the gods. But the general joy was disturbed by a melancholy accident: as the people were conducting Manius Tullius the consul from the circus to his house, he fell from his chariot, and died three days after.

The city of Fidenæ was not yet reduced: it held out during the following consulship of T. Æbutius and P. Veturius; but was taken the next year by T. Lartius, who, together with Q. Clælius, was raised to the consular dignity. The Latins, enraged at the loss of this town, began to complain of their leading men; which opportunity Tarquin and Mamilius improved so far, as to make all the Latin cities, 24 in number, enter into an alliance against Rome, and to bind themselves by oath never to violate their engagements. The Latins

me. tins made vast preparations, as did likewise the Romans; but the latter could procure no assistance from their neighbours. As the Latin nation was much superior to them in strength, they sent deputies to solicit succours from the several states with which they were surrounded: but their negotiations proved every where unsuccessful; and, what was worse than all, the republic had rebellious sons in her own bosom, who refused to lend their aid in defence of their country. The poorer sort of people, and the debtors, refused to take the military oaths, or to serve; alleging their poverty, and the fruitless hazards they ran in fighting for the defence of a city, where they were oppressed and enslaved by their creditors. This spirit of mutiny spread among the inferior classes, most of them refusing to lift themselves, unless their debts were all remitted by a decree of the senate; nay, they began to talk of leaving the city, and settling elsewhere.

The senate, apprehending a general insurrection, assembled to deliberate on the means of quieting those domestic troubles. Some were for a free remission of all debts, as the safest expedient at that juncture; others urged the dangerous consequences of such a condescension, advising them to lift such only as were willing to serve, not doubting but those who refused their assistance would offer it of their own accord when it was no longer desired. Several other expedients were proposed: but at length this prevailed; to wit, that all actions for debts should be suspended till the conclusion of the war with the Latins. But this the indigent debtors thought only a suspension of their misery; and therefore it had not the intended effect on the minds of the unruly multitude. The senate might indeed have prosecuted the ringleaders of the sedition; but the law of Poplicola, called the *Valerian law*, which allowed appeals to the assembly of the people, was a protection for the seditious, who were sure of being acquitted by the accomplices of their rebellion. The senate, therefore, to elude the effect of a privilege that put such a restraint upon their power, resolved to create one supreme magistrate, who, with the title of *dictator*, should have an absolute power for a time: but as this could not be done without striking at the law of Poplicola, and transferring the power of the people in criminal cases to a magistrate superior to all laws, it was necessary to use artifice, in order to obtain the consent of the curiæ. They therefore represented to them in a public assembly, that, in so difficult a conjuncture, when they had their domestic quarrels to decide, and at the same time a powerful enemy to repulse, it would be expedient to put the commonwealth under a single governor, who, superior to the consuls themselves, should be the arbiter of the laws, and as it were the father of his country; that his power should have no limits: but, however, lest he should abuse it, they ought not to trust him with it above six months.

The people, not foreseeing the consequences of this change, agreed to it; but the greatest difficulty was to find a man duly qualified in all respects for so great a trust. T. Lartius, one of the consuls, seemed to be of all men the most unexceptionable; but the senate, fearing to offend his colleague by an invidious preference, gave the consuls the power of choosing a dictator, and obliged them to name one of themselves, not doubting but Clælius would yield to the superior ta-

lents of his colleague; nor were they disappointed in their expectations. But Lartius, with the same readiness, named Clælius; and the only contest was, which of the two should raise the other to the supreme authority. Each persisted obstinately in remitting the dignity to his colleague, till Clælius, starting up on a sudden, abdicated the consulship, and, after the manner of an interrex, proclaimed Titus Lartius dictator, who thereupon was obliged to take upon him the government of the republic.

Lartius indeed took as much state upon him, after he had entered upon his office, as he had shown modesty in refusing it. He began by creating, without the participation either of the senate or people, a general of the Roman horse; an office which lasted only during the dictatorship, and which all subsequent dictators revived immediately after their election. Sp. Cassius, formerly consul, and honoured with a triumph, was the person he advanced to this second station in the republic. Lartius, having by this means secured the Roman knights, resolved, in the next place, to make the people respect and fear him. With this view he never appeared in public, without being attended by 24 lictors, to whose fasces he again added the axes which Poplicola had caused to be taken from them. The novelty of this sight was alone sufficient to awe the seditious, and, without executions, to spread consternation throughout Rome. The murmurs of the inferior classes being by this means silenced, the dictator commanded a census to be taken, according to the institution of King Servius. Every one, without exception, brought in his name, age, the particulars of his estate, &c. and there appeared to be in Rome 150,700 men who were past the age of puberty. Out of these the dictator formed four armies: the first he commanded himself; the second he gave to Clælius his late colleague; the third to Sp. Cassius his general of the horse; and the fourth he left in Rome, under the command of his brother Sp. Lartius, who was to guard the city. The Latins not being so forward in their preparations as was expected, all their hostilities against Rome this campaign amounted to no more than the sending a detachment into the Roman territory to lay it waste. The dictator gained some advantage over that party; and the great humanity with which he treated the prisoners and wounded, disposed the Latins to listen the more readily to the overtures which he at the same time made them for a suspension of hostilities. At length a truce was agreed on for a year; and then Lartius, seeing the republic restored to its former tranquillity, resigned the dictatorship, though the time appointed for its duration was not yet expired.

The following consulship of Sempronius Atratinus and Minutius Angurinus, produced nothing memorable. But the next year the truce expired, when Aulus Posthumius and T. Virginus took possession of the consulship. Both Romans and Latins were busied in making the necessary preparations for war. The nobility of Latium, who were for the most part in the interest of the Tarquins, having found means to exclude the citizens from the Latin diets, carried all before them in those assemblies: whereupon many of the citizens removed with their families to Rome, where they were well received. The Latins being bent upon war, the senate, notwithstanding the perfect har-

Rome.

82

He chooses a general of horse.

83

Number of the Romans.

Rome. money that reigned between them and the people, thought it expedient to create a dictator. The two consuls were therefore impowered to name one of themselves to that dignity; whereupon Virginius readily yielded it to his colleague Posthumius, as the more able commander. The new dictator, having created Æbutius Elva his general of the horse, and divided his army into four bodies, left one of them, under the command of Sempronius, to guard the city; and with the other three, commanded by himself, Virginius, and Æbutius, marched out against the Latins, who, with an army of 40,000 foot and 3000 horse, under the command of Sextus Tarquinius, Titus Tarquinius, and Mamilius, had already made themselves masters of Corbio, a strong-hold belonging to the republic, and put the garrison to the sword. Posthumius encamped in the night on a steep hill near the lake Regillus, and Virginius on another hill over-against him. Æbutius was ordered to march silently in the night, with the cavalry and light-armed infantry, to take possession of a third hill upon the road, by which provisions must be brought to the Latins.

74
Battle of
Regillus.

Before Æbutius had fortified his new camp, he was vigorously attacked by Lucius Tarquinius, whom he repulsed three times with great loss; the dictator having sent him a timely reinforcement. After this, Æbutius intercepted two couriers sent by the Volsci to the Latin generals, and, by letters found upon them, discovered, that a considerable army of the Volsci and Hernici were to join the Latin forces in three days. Upon this intelligence, Posthumius drew his three bodies of troops together, which amounted in all to no more than 24,000 foot and 1000 horse, with a design to engage the enemy before the arrival of the succours they expected. Accordingly he encouraged his men, and, with his army in battle-array, advanced to the place where the enemy was encamped. The Latins, who were much superior to the Romans in numbers, and besides began to want provisions, did not decline the engagement. Titus Tarquinius, at the head of the Roman exiles and deserters, was in the centre, Mamilius in the right wing, and Sextus Tarquinius in the left. In the Roman army the dictator commanded in the centre, Æbutius in the left wing, and Virginius in the right.

The first body which advanced was that of the dictator; and, as soon as it began to march, T. Tarquinius, singling out the dictator, ran full speed against him. The dictator did not decline the encounter, but, flying at his adversary, wounded him with a javelin in the right side. Upon this, the first line of the Latins advanced to cover their general; but he being carried out of the field, they made but a faint resistance when charged by the troops of the dictator. They were destitute of a leader; and therefore began to retire, when Sextus Tarquinius, taking the place of his brother, brought them back to the charge, and renewed the fight with such vigour, that the victory in the centre was still doubtful. On the side of Mamilius and Æbutius, both parties, encouraged by the example of their leaders, fought with incredible bravery and resolution. After a long and bloody contest, the two generals agreed to determine the doubtful victory by a single combat. Accordingly the champions pushed on their horses against each other. Æbutius with his lance

wounded Mamilius in the breast; and Mamilius with his sword Æbutius in the right arm. Neither of the wounds were mortal; but, both generals falling from their horses, put an end to the combat. Marcus Valerius, the brother of Poplicola, supplying the place of Æbutius, endeavoured, at the head of the Roman horse, to break the enemy's battalions; but was repulsed by the cavalry of the Roman royalists. At the same time Mamilius appeared again in the van, with a considerable body of horse and light-armed infantry. Valerius, with the assistance of his two nephews, the sons of Poplicola, and a chosen troop of volunteers, attempted to break through the Latin battalions, in order to engage Mamilius; but, being surrounded by the Roman exiles, he received a mortal wound in his side, fell from his horse, and died. The dead body was carried off by the two sons of Poplicola, in spite of the utmost efforts of the exiles, and delivered to Valerius's servants, who conveyed it to the Roman camp; but the young heroes being afterwards invested on all sides, and overpowered by numbers, were both killed on the spot. Upon their death, the left wing of the Romans began to give ground, but were soon brought back by Posthumius; who, with a body of Roman knights, flying to their assistance, charged the royalists with such fury, that they were, after an obstinate resistance, obliged to give way, and retire in the utmost confusion. In the mean time Titus Horninius, one of the dictator's lieutenants, having rallied those who had fled, fell upon some close battalions of the enemy's right wing, which still kept their ground under the command of Mamilius, killed him with his own hand, and put that body to flight. But while he was busy in stripping the body of his enemy, he received himself a wound, of which he died soon after.

Sextus Tarquinius in the mean time maintained the fight with great bravery, at the head of the left wing, against the consul Virginius; and had even broke thro' the right wing of the Roman army, when the dictator attacked him unexpectedly with his victorious squadrons. Then Sextus, having lost at once all hopes of victory, threw himself, like one in despair, into the midst of the Roman knights, and there sunk under a multitude of wounds, after he had distinguished himself in a most eminent manner. The death of the three generals was followed by the entire defeat of the Latin army. Their camp was taken and plundered, and most of their troops cut in pieces; for, of the 43,000 men who came into the field, scarce 10,000 returned home. The next morning the Volsci and Hernici came, according to their agreement, to assist the Latins; but finding, upon their arrival, how matters had gone, some of them were for falling upon the Romans before they could recover from the fatigue of the preceding day; but others thought it more safe to send ambassadors to the dictator, to congratulate him on his victory, and assure him that they had left their own country with no other design than to assist Rome in so dangerous a war. Posthumius, by producing their couriers and letters, gave them to understand that he was well apprised of their designs and treacherous proceedings. However, out of a regard to the law of nations, he sent them back unhurt, with a challenge to their generals to fight the next day; but the Volsci, and their confederates, not caring to engage a victorious army, decamped

Rome.

85

The Latins
entirely de-
feated, and
their camp
taken.

Rome.

camped in the night, and returned to their respective countries before break of day.

86

The whole
nation sub-
mits.

The Latins having now no remedy but an entire submission, sent ambassadors to solicit a peace at Rome, yielding themselves absolutely to the judgment of the senate. As Rome had long since made it a maxim to spare the nations that submitted, the motion of Titus Lartius, the late dictator, prevailed; and the ancient treaties with the Latins were renewed, on condition, however, that they should restore the prisoners they had taken, deliver up the deserters, and drive the Roman exiles out of Latium. Thus ended the last war which the Romans waged with their neighbours on account of their banished king; who, being now abandoned by the Latins, Hetrurians, and Sabines, retired into Campania, to Aristodemus tyrant of Cumæ, and there died, in the 90th year of his age and 14th of his exile.

87

Tarquin
dies.

The Romans were no sooner freed from these dangerous wars, than they began to oppress one another; and those domestic feuds took place which continued more or less during the whole time of the republic. The first disturbances were occasioned by the oppression of the plebeians who were debtors to the patricians. The senate, who were at the head of the patricians, chose to the consulate one Appius Claudius, who violently opposed the pretensions of the plebeians; but gave him for his colleague one P. Servilius, who was of a quite contrary opinion and disposition. The consequence of this was, that the consuls disagreed; the senate did not know what to determine, and the people were ready to revolt. In the midst of these disturbances, an army of the Volsci advanced towards Rome; the people refused to serve; and had not Servilius procured some troops who served out of a personal affection to himself, the city would have been in great danger.

But though the Volsci were for this time driven back, they had no intention of dropping their designs; they engaged in an alliance with them the Hernici and Sabines. In the mean time, the disputes at Rome continued with as much violence as ever. Nay, though they were expressly told that the Volscian army was on its way to besiege the city, the plebeians absolutely refused to march against them; saying, that it was the same thing whether they were chained by their own countrymen or by the enemy. In this extremity Servilius promised, that when the enemy were repulsed the senate would remit all the debts of the plebeians. This having engaged them to serve, the consul marched out at their head, defeated the enemy in a pitched battle, and took their capital, giving it up to be plundered by his soldiers, without reserving any part for the public treasury.

Whatever might have been the reasons of Servilius for this step, it furnished Appius with a pretence for refusing him a triumph, as a man of a seditious disposition, who aimed at popularity by an excessive indulgence and profuseness to his soldiers. Servilius, incensed at this injustice, and encouraged by the acclamations of the people, decreed himself a triumph in spite of Appius and the senate. After this he marched against the Aurunci, who had entered Latium; and, in conjunction with Posthumus Regillens, he utterly defeated them, and obliged them to retire into their own country. But neither the services of the general nor

his soldiers could mollify the senate and patrician party. Appius even doubled the severity of his judgments, and imprisoned all those who had been set at liberty during the war. The prisoners cried for relief to Servilius; but he could not obtain the accomplishment of those promises which the senate never had meant to perform; neither did he choose to quarrel openly with the whole patrician body; so that, striving to preserve the friendship of both parties, he incurred the hatred of the one and the contempt of the other. Perceiving therefore that he had lost all his interest with the plebeians, he joined with the patricians against them; but the plebeians rushing tumultuously into the forum, made such a noise, that no sentence pronounced by the judges could be heard, and the utmost confusion prevailed through the whole city. Several proposals were made to accommodate matters; but through the obstinacy of Appius and the majority of the senators, they all came to nothing. In the mean time it was necessary to raise an army against the Sabines, who had invaded the territories of the republic; but the people refused to serve. Manius Valerius, however, brother to the celebrated Poplicola, once more prevailed upon them to march out against the common enemy; having previously obtained assurances from the senate that their grievances should be redressed. But no sooner had victory declared in favour of the Romans, than the senate, apprehending that the soldiers at their return would challenge Valerius, who had been nominated dictator, for the performance of their promises, desired him and the two consuls to detain them still in the field, under pretence that the war was not quite finished. The consuls obeyed; but the dictator, whose authority did not depend on the senate, disbanded his army, and declared his soldiers free from the oath which they had taken; and as a further proof of his attachment to the plebeians, he chose out of that order 400, whom he invested with the dignity of knights. After this he claimed the accomplishment of the promises made by the senate: but instead of performing them, he had the mortification to hear himself loaded with reproaches; on which he resigned his office as dictator, and acquainted the people with his inability to fulfil his engagements to them. No sooner were these transactions known in the army, than the soldiers, to a revolt, but man, deserted the consuls and other officers, and retired to a hill called afterwards *Mons Sacer*, three miles from Rome, where they continued to observe an exact discipline, offering no sort of violence whatever. The senate, after taking proper measures for the defence of the city, sent a deputation to the malecontents; but it was answered with contempt. In short, all things tended to a civil war, when at last matters were compromised by the institution of tribunes of the people, who had power to prevent the passing of any law that might be prejudicial to the people, and whose persons were declared sacred, inasmuch that whoever offered the least violence to the person of a tribune was declared accursed, his effects were to be consecrated to Ceres, and he himself might be killed with impunity; and all the Romans were to engage themselves, in their own name and that of their posterity, never to repeal this law. The people, after these regulations, erected an altar to Jupiter the Terrible, on the top of the hill where their camp had stood; and when they had offered

Rome.

88

The soldiers
ended by
creating
of the
people.

Rome.

ed sacrifices to the god, and consecrated the place of their retreat, they returned to Rome, led by their new magistrates and the deputies of the senate.

Thus the Roman constitution, which had originally been monarchic, and from thence had passed into an aristocracy, began now to verge towards a democracy. The tribunes immediately after their election obtained permission from the senate to elect two persons as their ministers or assistants, who should ease them a little in the great multiplicity of their affairs. These were called *plebeian ædiles*; and afterwards came to have the inspection of the public baths, aqueducts, with many other offices originally belonging to the consuls, after which they were called simply *ædiles*.

All opposition to the making of regular levies being now at an end, the consul Cominius led an army against the Volsci. He defeated them in battle, and took from them Longula and Polusca; after which he besieged Corioli, a city strongly fortified, and which might be called their capital. He carried this place, and gained a victory over the Antiates, the same day; but Caius Marcius, an eminent patrician, had all the glory of both actions. The troops detached by the consul to scale the walls of Corioli being repulsed in their first assault, Marcius rallied the runaways, led them on afresh to the charge, drove back the enemy within their walls, and, entering the city with them, made himself master of it. This exploit achieved, he with all expedition put himself in the foremost ranks of the consul's main army, that was just going to engage with the Antiates, who were come to the relief of the place; and there he behaved with equal bravery, and had equal success.

The next day the consul, having erected his tribunal before his tent, called the soldiers together. His whole speech to them was little more than a panegyric upon Marcius. He put a crown upon his head; assigned him a tenth part of all the spoil; and, in the name of the republic, made him a present of a fine horse with stately furniture, giving him leave at the same time to choose out any ten of the prisoners for himself; and lastly, he allotted him as much money as he could carry away. Of all these offers Marcius accepted only the horse, and one captive of the ten, an old friend of his family, that he might give him his liberty. To add to the glory of the brave warrior, the consul bestowed on him the surname of *Coriolanus*, transferring thereby from himself to Marcius all the honour of the conquest of Corioli. Cominius, at his return to Rome, disbanded his army; and war was succeeded by works of religion, public games, and treaties of peace. A census and a lustrum closed the events of this memorable consulship. There appeared to be in Rome at this time no more than 110,000 men fit to bear arms; a number by many thousands less than at the last enrollment. Doubtless great numbers had run away to avoid being slaves to their creditors.

Under the following administration of T. Geganius and P. Minucius, Rome was terribly afflicted by a famine, occasioned chiefly by the neglect of ploughing and sowing during the late troubles; for the sedition had happened after the autumnal equinox, about sowing-time, and the accommodation was not made till just before the winter solstice. The senate dispatched agents into Hetruria, Campania, the country of the

Volsci, and even into Sicily, to buy corn. Those who embarked for Sicily met with a tempest which retarded their arrival at Syracuse; where they were constrained to pass the winter. At Cumæ, the tyrant Aristodemus seized the money brought by the commissaries; and they themselves with difficulty saved their lives by flight. The Volsci, far from being disposed to succour the Romans, would have marched against them, if a sudden and most destructive pestilence had not defeated their purpose. In Hetruria alone the Roman commissaries met with success. They sent a considerable quantity of grain from thence to Rome in barks: but this was in a short time consumed, and the misery became excessive: the people were reduced to eat any thing they could get; and nature in so great extremity loathed nothing.

During this distress a deputation came from Velitræ a Volscian city, where the Romans had formerly planted a colony, representing that nine parts in ten of its inhabitants had been swept away by a plague, and praying the Romans to send a new colony to re-people it. The conscript fathers without much hesitation granted the request, pressed the departure of the colony, and without delay named three leaders to conduct it.

The people at first were very well pleased with the proposal, as it gave them a prospect of relief in their hunger: but when they reflected on the terrible havoc the plague had made among the old inhabitants of Velitræ, they began to fear that the place might be still infected; and this apprehension became so universal, that not one of them would consent to go thither. Nevertheless the senate at length published a decree that all the citizens should draw lots; and that those to whose lot it fell to be of the colony should instantly march for Velitræ, or suffer the severest punishments for their disobedience: fear and hunger made the people comply; and the fathers, a few days after, sent away a second colony to Norba, a considerable city of Latium. But the patricians were disappointed as to the benefit they expected from these measures. The plebeians who remained in Rome being more and more pressed by hunger and want, grew daily more angry with the senate. At first they assembled in small companies to vent their wrath in abusive complaints; and at length, in one great body, rushed all together into the forum, calling out upon their tribunes for succour.

The tribunes made it their business to heighten the general discontent. Having convened the people, Spurius Icilius, chief of the college of tribunes, inveighed most bitterly against the senate; and when he had ended his harangue, exhorted others to speak freely their thoughts; particularly, and by name, calling upon Brutus and Sicinius, the ringleaders of the former sedition, and now *ædiles*. These men, far from attempting to extinguish the fire, added fresh fuel to it: And the more to inflame the spirits of the multitude, they enumerated all the past insults which the people had suffered from the nobles. Brutus concluded his harangue with loudly threatening, that if the plebeians would follow his advice, he would soon oblige those men who had caused the present calamity to find a remedy for it; after which the assembly was dismissed.

The next day, the consuls, greatly alarmed at this commotion, and apprehending from the menaces of Brutus some very mischievous event, thought it advisable

90
Bravery of
Caius Mar-
cius Corio-
lanus.

91
Diminu-
tion of the
power of
the Ro-
mans.

92
A famine
in the city.

Rome.

93
A colony
sent to Ve-
litræ.

94
Disturban-
ces raised
by the tri-
bunes.

Rome.

fable to convene the senators, that they might consider of the best means to avert the impending evil. The fathers could not agree in opinion. Some were for employing soft words and fair promises to quiet and gain over the most turbulent. But Appius's advice prevailed: which was, that the consuls should call the people together, assure them that the patricians had not brought upon them the miseries they suffered, and promise, on the part of the senate, all possible care to provide for their necessities; but at the same time should reprove the disturbers of the public peace, and threaten them with the severest punishments, if they did not amend their behaviour.

When the consuls, towards the close of the day, having assembled the people, would have signified to them the disposition and intention of the senate, they were interrupted by the tribunes. A dispute ensued, in which no order or decency was observed on either side. Several speaking at the same time, and with great vociferation, no one could be well understood by the audience. The consuls judged, that being the superior magistrates, their authority extended to all assemblies of the citizens. On the other side, it was pretended, that the assemblies of the people were the province of the tribunes, as the senate was that of the consuls.

95
The power
of the
people in-
creases.

The dispute grew warm, and both parties were ready to come to blows; when Brutus having put some questions to the consuls, ended it for that time. Next day he proposed a law which was carried, that no person whatever should interrupt a tribune when speaking in an assembly of the people; by which means the influence and power of the popular party was considerably increased, and the tribunes became formidable opponents to the consuls and patricians. An opportunity soon offered for both parties to try their strength. A great fleet of ships laden with corn from Sicily, a great part of which was a present from Gelon the king of that country to the Romans, and the rest purchased by the senate with the public money, raised their spirits once more.

But Coriolanus incurred their resentment, by insisting that it should not be distributed till the grievances of the senate were removed. For this, the tribunes summoned him to a trial before the people, under pretence that he aspired at the sovereignty.

96
Coriolanus
banished.

When the appointed day was come, all persons were filled with the greatest expectations, and a vast concourse from the adjacent country assembled and filled up the forum. Coriolanus, upon this, presented himself before the people with a degree of intrepidity that merited better fortune. His graceful person, his persuasive eloquence, the cries of those whom he had saved from the enemy, inclined the auditors to relent. But being confounded with a new charge which he did not expect, of having embezzled the plunder of Antium, the tribunes immediately took the votes, and Coriolanus was condemned to perpetual exile.

This sentence against their bravest defender struck the whole body of the senate with sorrow, consternation, and regret. Coriolanus alone, in the midst of the tumult, seemed an unconcerned spectator. He returned home, followed by the lamentations of hundreds of the most respectable senators and citizens of Rome, to take a lasting leave of his wife, his children, and his mother Veturia. Thus recommending his little children to

their care, he left the city, without followers or fortune, to take refuge with Tullus Attius, a man of great power among the Volscians, who took him under his protection, and espoused his quarrel.

Rome.

97
He leaves
the city,
and joins
the Volsci.

The first thing to be done, was to induce the Volsci to break the league which had been made with Rome; and for this purpose Tullus sent many of his citizens thither, in order to see some games at that time celebrating; but at the same time gave the senate private information, that the strangers had dangerous intentions of burning the city. This had the desired effect; the senate issued an order that all strangers, whoever they were, should depart from Rome before sunset. This order Tullus represented to his countrymen as an infraction of the treaty, and procured an embassy to Rome, complaining of the breach, and demanding back all the territories belonging to the Volscians, of which they had been violently dispossessed; declaring war in case of a refusal: but this message was treated by the senate with contempt.

War being thus declared on both sides, Coriolanus and Tullus were made generals of the Volscians; and accordingly invaded the Roman territories, ravaging and laying waste all such lands as belonged to the plebeians, but letting those of the senators remain untouched. In the mean time, the levies went on very slowly at Rome; the two consuls, who were re-elected by the people, seemed but little skilled in war, and even feared to encounter a general whom they knew to be their superior in the field. The allies also showed their fears, and slowly brought in their succours; so that Coriolanus continued to take their towns one after the other. Fortune followed him in every expedition; and he was now so famous for his victories, that the Volsci left their towns defenceless to follow him into the field. The very soldiers of his colleague's army came over to him, and would acknowledge no other general. Thus finding himself unopposed in the field, and at the head of a numerous army, he at length invested the city of Rome itself, fully resolved to besiege it. It was then that the senate and the people unanimously agreed to city.

98
Gains great
advantages
over the
Romans.

Another embassy was now sent forth, conjuring him not to exact from his native city aught but what became Romans to grant. Coriolanus, however, still persisted in his former demands, and granted them but three days in which to finish their deliberations. In this exigence, all that was left was another deputation still more solemn than either of the former, composed of the pontiffs, the priests, and the augurs. These, clothed in their habits of ceremony, and with a grave and mournful deportment, issued from the city, and entered the camp of the conqueror: but all in vain, they found him severe and inflexible as before.

When the people saw them return ineffectually, they began to give up the commonwealth as lost. Their temples were filled with old men, with women and children, who, prostrate at their altars, put up their ardent prayers for the preservation of their country. Nothing was to be heard but anguish and lamentation, nothing to be seen but scenes of affright and distress. At length

99
invests the

Rome.

100
But abandons the enterprize at the intercession of his mother.

101
Is assassinated by the Volsci.

102
New disturbances.

it was suggested to them, that what could not be effected by the intercession of the senate or the adjuration of the priests, might be brought about by the tears of his wife, or the commands of his mother. This deputation seemed to be relished by all; and even the senate itself gave it the sanction of their authority. Veturia, the mother of Coriolanus, at first made some hesitation to undertake so pious a work: however, she at last undertook the embassy, and set forward from the city, accompanied by many of the principal matrons of Rome, with Volumnia his wife, and his two children. Coriolanus, who at a distance discovered this mournful train of females, was resolved to give them a denial, and called his officers round him to be witnesses of his resolution; but, when told that his mother and his wife were among the number, he instantly came down from his tribunal to meet and embrace them. At first, the women's tears and embraces took away the power of words; and the rough soldier himself, hard as he was, could not refrain from sharing in their distress. Coriolanus now seemed much agitated by contending passions; while his mother, who saw him moved, seconded her words by the most persuasive eloquence, her tears: his wife and children hung round him, intreating for protection and pity; while the fair train, her companions, added their lamentations, and deplored their own and their country's distress. Coriolanus for a moment was silent, feeling the strong conflict between honour and inclination: at length, as if roused from his dream, he flew to take up his mother, who had fallen at his feet, crying out, "O my mother, thou hast saved Rome, but lost thy son." He accordingly gave orders to draw off the army, pretending to the officers that the city was too strong to be taken. Tullus, who had long envied his glory, was not remiss in aggravating the tenor of his conduct to his countrymen. Upon their return, Coriolanus was slain in an insurrection of the people, and afterwards honourably buried, with late and ineffectual repentance.

The year following, the two consuls of the former year, Manlius and Fabius, were cited by the tribunes to appear before the people. The Agrarian law, which had been proposed some time before, for equally dividing the lands of the commonwealth among the people, was the object invariably pursued, and they were accused of having made unjustifiable delays in putting it off.

It seems the Agrarian law was a grant the senate could not think of giving up to the people. The consuls, therefore, made many delays and excuses, till at length they were once more obliged to have recourse to a dictator; and they fixed upon Quintus Cincinnatus, a man who had for some time given up all views of ambition, and retired to his little farm, where the deputies of the senate found him holding the plough, and dressed in the mean attire of a labouring husbandman. He appeared but little elevated with the addresses of ceremony and the pompous habits they brought him; and, upon declaring to him the senate's pleasure, he testified rather a concern that his aid should be wanted. However, he departed for the city, where both parties were strongly enflamed against each other: but he was resolved to side with neither; only, by a strict attention to the interests of his country, instead of gaining the confidence of faction, to obtain the esteem of all.

Thus, by threats and well-timed submission, he prevailed upon the tribunes to put off their law for a time, and carried himself so as to be a terror to the multitude whenever they refused to enlist; and their greatest encourager whenever their submission deserved it. Thus, having restored that tranquillity to the people which he so much loved himself, he again gave up the splendours of ambition, to enjoy it with a greater relish in his little farm.

Cincinnatus was not long retired from his office when a fresh exigence of the state once more required his assistance. The Æqui and the Volsci, who, though still worsted, still were for renewing the war, made new incursions into the territories of Rome. Minutius, one of the consuls who succeeded Cincinnatus, was sent to oppose them; but being naturally timid, and rather more afraid of being conquered than desirous of victory, his army was driven into a defile between two mountains, from which, except through the enemy, there was no egress. This, however, the Æqui had the precaution to fortify; by which the Roman army was so hemmed in on every side, that nothing remained but submission to the enemy, famine, or immediate death. Some knights, who found means of getting away privately through the enemy's camp, were the first that brought the account of this disaster to Rome. Nothing could exceed the consternation of all ranks of people when informed of it. The senate at first thought of the other consul; but not having sufficient experience of his abilities, they unanimously turned their eyes upon Cincinnatus, and resolved to make him dictator. Cincinnatus, the only person on whom Rome could now place her whole dependence, was found, as before, by the messengers of the senate, labouring in his little field with cheerful industry. He was at first astonished at the signs of unbounded power with which the deputies came to invest him; but still more at the approach of the principal of the senate, who came out to meet him. A dignity so unlooked for, however, had no effect upon the simplicity, or the integrity of his manners: and being now possessed of absolute power, and called upon to nominate his master of the horse, he chose a poor man named *Tarquinius*, one who, like himself, despised riches when they led to dishonour. Upon entering the city, the dictator put on a serene look, and intreated all those who were able to bear arms to repair before sun-set to the Campus Martius (the place where the levies were made) with necessary arms, and provisions for five days. He put himself at the head of these; and, marching all night with great expedition, he arrived before day within sight of the enemy. Upon his approach, he ordered his soldiers to raise a loud shout, to apprize the consul's army of the relief that was at hand. The Æqui were not a little amazed when they saw themselves between two enemies; but still more when they perceived Cincinnatus making the strongest entrenchments beyond them, to prevent their escape, and inclosing them as they had inclosed the consul. To prevent this, a furious combat ensued; but the Æqui, being attacked on both sides, and unable to resist or fly, begged a cessation of arms. They offered the dictator his own terms: he gave them their lives; but obliged them, in token of servitude, to pass under the yoke, which was two spears set upright, and another across, in the form of a gallows, beneath which

Rome.

103
Quelled Cincinnatus

104
Who saved a consular army from destruction

the vanquished were to march. Their captains and generals he made prisoners of war, being reserved to adorn his triumph. As for the plunder of the enemy's camp, that he gave entirely up to his own soldiers, without reserving any part for himself, or permitting those of the delivered army to have a share. Thus, having rescued a Roman army from inevitable destruction, having defeated a powerful enemy, having taken and fortified their city, and, still more, having refused any part of the spoil, he resigned his dictatorship, after having enjoyed it but 14 days. The senate would have enriched him; but he declined their proffers, choosing to retire once more to his farm and his cottage, content with temperance and fame.

But this repose from foreign invasion did not lessen the tumults of the city within. The clamours for the Agrarian law still continued, and still more fiercely, when Sicinius Dentatus, a plebeian, advanced in years, but of an admirable person and military deportment, came forward, to enumerate his hardships and his merits. This old soldier made no scruple of extolling the various merits of his youth; but indeed his achievements supported ostentation. He had served his country in the wars 40 years; he had been an officer 30, first a centurion, and then a tribune: he had fought 120 battles, in which, by the force of his single arm, he had saved a multitude of lives: he had gained 14 civic, three mural, and eight golden crowns, besides 83 chains, 60 bracelets, 18 gilt spears, and 23 horse-trappings, whereof nine were for killing the enemy in single combat: moreover, he had received 45 wounds, all before, and none behind. These were his honours: yet, notwithstanding all this, he had never received any share of those lands which were won from the enemy, but continued to drag on a life of poverty and contempt; while others were possessed of those very territories which his valour had won, without any merit to deserve them, or ever having contributed to the conquest. A case of so much hardship had a strong effect upon the multitude; they unanimously demanded that the law might be passed, and that such merit should not go unrewarded. It was in vain that some of the senators rose up to speak against it; their voices were drowned by the cries of the people. When reason, therefore, could no longer be heard, passion, as usual, succeeded; and the young patricians, running furiously into the throng, broke the balloting urns, and dispersed the multitude that offered to oppose them. For this they were some time after fined by the tribunes; but their resolution, nevertheless, for the present, put off the Agrarian law.

The commonwealth of Rome had now for near 60 years been fluctuating between the contending orders that composed it, till at length, each side, as if weary, were willing to respite a while from the mutual exertions of their claims. The citizens, now, therefore, of every rank, began to complain of the arbitrary decisions of their magistrates, and wished to be guided by a written body of laws, which being known might prevent wrongs as well as punish them. In this both the senate and the people concurred, as hoping that such laws would put an end to the commotions that so long had harassed the state. It was thereupon agreed, that ambassadors should be sent to the Greek cities in Italy, and to Athens, to bring home such laws from

thence as by experience had been found most equitable and useful. For this purpose, three senators, Posthumius, Sulpicius, and Manlius, were fixed upon, and galleys assigned to convoy them, agreeable to the majesty of the Roman people. While they were upon this commission abroad, a dreadful plague depopulated the city at home, and supplied the interval of their absence with other anxiety than that of wishes for their return. In about a year the plague ceased, and the ambassadors returned, bringing home a body of laws, collected from the most civilized states of Greece and Italy, which being afterwards formed into ten tables, and two more being added, made that celebrated code called the *Laws of the Twelve Tables*, many fragments of which remain to this day.

The ambassadors were no sooner returned, than the tribunes required that a body of men should be chosen to digest their new laws into proper form, and to give weight to the execution of them. After long debates whether this choice should not be partly made from the people as well as the patricians, it was at last agreed that 10 of the principal senators should be elected, whose power, continuing for a year, should be equal to that of kings and consuls, and that without any appeal. The persons chosen were Appius and Genutius, who had been elected consuls for the ensuing year; Posthumius, Sulpicius, and Manlius, the three ambassadors; Sextus and Romulus, former consuls; with Julius Veturius, and Horatius, senators of the first consideration.

The decemviri being now invested with absolute power, agreed to take the reins of government by turns, and that each should dispense justice for a day.

These magistrates, for the first year, wrought with extreme application: and their work being finished, it was expected that they would be contented to give up their offices; but having known the charms of power, they were now unwilling to resign it: they therefore pretended that some laws were yet wanting to complete their design, and intreated the senate for a continuance of their offices; to which that body assented.

But they soon threw off the mask of moderation, and, regardless either of the approbation of the senate or the people, resolved to continue themselves, against all order, in the decemvirate. A conduct so notorious produced discontents; and these were as sure to produce fresh acts of tyranny. The city was become almost a desert, with respect to all who had any thing to lose; and the decemvirs rapacity was then only discontinued, when they wanted fresh objects to exercise it upon. In this state of slavery, proscription, and mutual distrust, not one citizen was found to strike for his country's freedom; these tyrants continued to rule without controul, being constantly guarded, not with their lieutenants alone, but a numerous crowd of dependents, clients, and even patricians, whom their vices had confederated round them.

In this gloomy situation of the state, the Æqui and Volsci, those constant enemies of the Romans, undertook their incursions, resolved to profit by the intestine divisions of the people, and advanced within about 40 miles of Rome.

But the decemviri, being put in possession of all the military as well as of the civil power, divided their army

Rome.

105
Decemviri
elected.109
They be-
come abso-
lute.110
Invasion of
the Æqui
and Volsci.

Rome.

111
The Ro-
mans de-
feated.

112
Murder of
Sicinius
Dentatus.

my into three parts; whereof one continued with Appius in the city, to keep it in awe; the other two were commanded by his colleagues, and were led, one against the Æqui, and the other against the Sabines. The Roman soldiers had now got into a method of punishing the generals whom they disliked, by suffering themselves to be vanquished in the field. They put it in practice upon this occasion, and shamefully abandoned their camp upon the approach of the enemy. Never was the news of a victory more joyfully received at Rome than the tidings of this defeat: the generals, as is always the case, were blamed for the treachery of their men: some demanded that they should be deposed; others cried out for a dictator to lead the troops to conquest: but among the rest, old Sicinius Dentatus the tribune spoke his sentiments with his usual openness; and treating the generals with contempt, showed all the faults of their discipline in the camp, and of their conduct in the field. Appius, in the mean time, was not remiss in observing the disposition of the people. Dentatus, in particular, was marked out for vengeance, and, under pretence of doing him particular honour, he was appointed legate, and put at the head of the supplies which were sent from Rome to reinforce the army. The office of legate was held sacred among the Romans, as in it were united the authority of a general, with the reverence due to the priesthood. Dentatus, no way suspecting his design, went to the camp with alacrity, where he was received with all the external marks of respect. But the generals soon found means of indulging their desire of revenge. He was appointed at the head of 100 men to go and examine a more commodious place for encampment, as he had very candidly assured the commanders that their present situation was wrong. The soldiers, however, who were given as his attendants, were assassins; wretches who had long been ministers of the vengeance of the decemviri, and who now engaged to murder him, though with all those apprehensions which his reputation, as he was called the *Roman Achilles*, might be supposed to inspire. With these designs, they led him from the way into the hollow bosom of a retired mountain, where they began to set upon him from behind. Dentatus, now too late, perceived the treachery of the decemviri, and was resolved to sell his life as dearly as he could; he therefore put his back to a rock, and defended himself against those who pressed most closely. Though now grown old, he had still the remains of his former valour, and killed no less than 15 of the assailants, and wounded 30. The assassins now therefore, terrified at his amazing bravery, showered in their javelins upon him at a distance; all which he received in his shield with undaunted resolution. The combat, though so unequal in numbers, was managed for some time with doubtful success, till at length his assailants bethought themselves of ascending the rock against which he stood, and thus poured down stones upon him from above. This succeeded; the old soldier fell beneath their united efforts, after having shown by his death that he owed it to his fortitude, and not his fortune, that he had come off so many times victorious. The decemviri pretended to join in the general sorrow for so brave a man, and decreed him a funeral, with the first military honours: but the greatness of their apparent distress, compared with their

known hatred, only rendered them still more detestable to the people.

But a transaction still more atrocious than the former served to inspire the citizens with a resolution to break all measures of obedience, and at last to restore freedom. Appius, who still remained at Rome, sitting one day on his tribunal to dispense justice, saw a maiden of exquisite beauty, and aged about 15, passing to one of the public schools, attended by a matron her nurse. Conceiving a violent passion for her, he resolved to obtain the gratification of his desire, whatever should be the consequence, and found means to inform himself of her name and family. Her name was *Virginia*, the daughter of Virginius a centurion, then with the army in the field; and she had been contracted to Icilius, formerly a tribune of the people, who had agreed to marry her at the end of the present campaign. Appius, at first, resolved to break this match, and to espouse her himself: but the laws of the Twelve Tables had forbidden the patricians to intermarry with the plebeians; and he could not infringe these, as he was the enactor of them. Nothing therefore remained but a criminal enjoyment; which, as he was long used to the indulgence of his passions, he resolved to obtain. After having vainly tried to corrupt the fidelity of her nurse, he had recourse to another expedient, still more guilty. He pitched upon one Claudius, who had long been the minister of his pleasures, to assert the beautiful maid was his slave, and to refer the cause to his tribunal for decision. Claudius behaved exactly according to his instructions; for entering into the school, where Virginia was playing among her female companions, he seized upon her as his property, and was going to drag her away by force, but was prevented by the people drawn together by her cries. At length, after the first heat of opposition was over, he led the weeping virgin to the tribunal of Appius, and there plausibly exposed his pretensions. He asserted, that she was born in his house, of a female slave, who sold her to the wife of Virginius, who had been barren. That he had several credible evidences to prove the truth of what he said; but that, until they could come together, it was but reasonable the slave should be delivered into his custody, being her proper master. Appius seemed to be struck with the justice of his claims. He observed, that if the reputed father himself were present, he might indeed be willing to delay the delivery of the maiden for some time; but that it was not lawful for him, in the present case, to detain her from her master. He therefore adjudged her to Claudius, as his slave, to be kept by him till Virginius should be able to prove his paternity. This sentence was received with loud clamours and reproaches by the multitude: the women, in particular, came round Virginia, as if willing to protect her from the judge's fury; while Icilius, her lover, boldly opposed the decree, and obliged Claudius to take refuge under the tribunal of the decemvir. All things now threatened an open insurrection; when Appius, fearing the event, thought proper to suspend his judgment till the arrival of Virginius, who was then about 11 miles from Rome, with the army. The day following was fixed for the trial; and, in the mean time, Appius sent letters to the generals to confine Virginius, as his arrival in town might only serve to kindle

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Tragical
story of
Virginia.

ome. kindle sedition among the people. These letters, however, were intercepted by the centurion's friends, who sent him down a full relation of the design laid against the liberty and the honour of his only daughter. Virginius, upon this, pretending the death of a near relation, got permission to leave the camp, and flew to Rome, inspired with indignation and revenge. Accordingly, the next day he appeared before the tribunal, to the astonishment of Appius, leading his weeping daughter by the hand, both habited in the deepest mourning. Claudius, the accuser, was also there, and began by making his demand. Virginius next spoke in turn: he represented that his wife had many children; that she had been seen pregnant by numbers; that, if he had intentions of adopting a supposititious child, he would have fixed upon a boy rather than a girl; that it was notorious to all, that his wife had herself suckled her own child; and that it was surprising such a claim should be now revived, after a 15 years discontinuance. While the father spoke this with a stern air, Virginia stood trembling by, and, with looks of persuasive innocence, added weight to all his remonstrances. The people seemed entirely satisfied of the hardship of his case, till Appius, fearing what he said might have dangerous effects upon the multitude, interrupted him, under a pretence of being sufficiently instructed in the merits of the cause, and finally adjudged her to Claudius, ordering the lictors to carry her off. The lictors, in obedience to his command, soon drove off the throng that pressed round the tribunal; and now they seized upon Virginia, and were delivering her up into the hands of Claudius, when Virginius, who found that all was over, seemed to acquiesce in the sentence. He therefore mildly intreated Appius to be permitted to take a last farewell of one whom he had long considered as his child; and so satisfied, he would return to his duty with fresh alacrity. With this the decemvir complied, but upon condition that their endearments should pass in his presence. Virginius, with the most poignant anguish, took his almost expiring daughter in his arms, for a while supported her head upon his breast, and wiped away the tears that rolled down her lovely visage; and happening to be near the shops that surrounded the forum, he snatched up a knife that lay on the shambles, and buried the weapon in her breast; then holding it up, reeking with the blood of his daughter, "Appius (he cried) by this blood of innocence, I devote thy head to the infernal gods." Thus saying, with the bloody knife in his hand, and threatening destruction to whomsoever should oppose him, he ran through the city, wildly calling upon the people to strike for freedom, and from thence went to the camp, in order to spread a like flame through the army.

He no sooner arrived at the camp, followed by a number of his friends, but he informed the army of all that was done, still holding the bloody knife in his hand. He asked their pardon, and the pardon of the gods, for having committed so rash an action, but ascribed it all to the dreadful necessity of the times. The army, already predisposed, immediately with shouts echoed their approbation; and decamping, left their generals behind, to take their station once more upon mount Aventine, whither they had retired about 40

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years before. The other army, which had been to oppose the Sabines, seemed to feel a like resentment, and came over in large parties to join them.

Appius, in the mean time, did all he could to quell the disturbances in the city; but finding the tumult incapable of controul, and perceiving that his mortal enemies, Valerius and Horatius, were the most active in opposition, at first attempted to find safety by flight; nevertheless, being encouraged by Oppius, who was one of his colleagues, he ventured to assemble the senate, and urged the punishment of all deserters. The senate, however, were far from giving him the relief he sought for; they foresaw the dangers and miseries that threatened the state, in case of opposing the incensed army; they therefore dispatched messengers to them, offering to restore their former mode of government. To this proposal all the people joyfully assented, and the army gladly obeyed. Appius and Oppius, one of his colleagues, both died by their own hands in prison. The other eight decemvirs went into voluntary exile; and Claudius, the pretended master of Virginia, was driven out after them.

The tribunes now grew more turbulent: they proposed two laws; one to permit plebeians to intermarry with patricians; and the other, to permit them to be admitted to the consulship also. The senators received these proposals with indignation, and seemed resolved to undergo the utmost extremities rather than submit to enact them. However, finding their resistance only increase the commotions of the state, they at last consented to pass the law concerning intermarriages, hoping that this concession would satisfy the people. But they were to be appeased but for a very short time: for, returning to their old custom of refusing to enlist upon the approach of an enemy, the consuls were forced to hold a private conference with the chief of the senate; where, after many debates, Claudius proposed an expedient as the most probable means of satisfying the people in the present conjuncture. This was, to create six or eight governors in the room of consuls, whereof one half at least should be patricians. This project was eagerly embraced by the people; yet so fickle were the multitude, that though many of the plebeians stood, the choice wholly fell upon the patricians who offered themselves as candidates. These new magistrates were called *military tribunes*; they were at first but three, afterwards they were increased to four, and at length to six. They had the power and ensigns of consuls; yet that power being divided among a number, each singly was of less authority. The first that were chosen only continued in office about three months, the augurs having found something amiss in the ceremonies of their election.

The military tribunes being deposed, the consuls once more came into office; and, in order to lighten the weight of business which they were obliged to sustain, a new office was erected, namely, that of *censors*, to be chosen every fifth year. Their business was to take an estimate of the number and estates of the people, and to distribute them into their proper classes; to inspect into the lives and manners of their fellow-citizens; to degrade senators for misconduct; to dismount knights; and to turn down plebeians from their tribes into an inferior, in case of misdemeanour. The two first

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The decemvirate abolished.

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New disturbances.

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Military tribunes elected.

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The office of censor instituted.

Y y

censors

Rome. censors were Papirius and Sempronius, both patricians; and from this order they continued to be elected for near 100 years.

This new creation served to restore peace for some time among the orders; and the triumph gained over the Volscians by Geganius the consul, added to the universal satisfaction that reigned among the people.

This calm, however, was but of short continuance: for, some time after, a famine pressing hard upon the poor, the usual complaints against the rich were renewed; and these, as before, proving ineffectual, produced new seditions. The consuls were accused of neglect in not having laid in proper quantities of corn: they, however, disregarded the murmurs of the populace, content with exerting all their care in attempts to supply the pressing necessities. But though they did all that could be expected from active magistrates, in providing and distributing provisions to the poor; yet Spurius Mælius, a rich knight, who had bought up all the corn of Tuscan, by far outshone them in liberality. This demagogue, inflamed with a secret desire of becoming powerful by the contentions in the state, distributed corn in great quantities among the poorer sort each day, till his house became the asylum of all such as wished to exchange a life of labour for one of lazy dependence. When he had thus gained a sufficient number of partizans, he procured large quantities of arms to be brought into his house by night, and formed a conspiracy, by which he was to obtain the command, while some of the tribunes, whom he had found means to corrupt, were to act under him, in seizing upon the liberties of his country. Minucius soon discovered the plot; and informing the senate thereof, they immediately formed the resolution of creating a dictator, who should have the power of quelling the conspiracy, without appealing to the people. Cincinnatus, who was now 80 years old, was chosen once more to rescue his country from impending danger. He began by summoning Mælius to appear; who refused to obey. He next sent Ahala, the master of his horse, to force him; who, meeting him in the forum, and pressing Mælius to follow him to the dictator's tribunal, upon his refusal Ahala killed him upon the spot. The dictator applauded the resolution of his officer, and commanded the conspirator's goods to be sold, and his house to be demolished, distributing his stores among the people.

The tribunes of the people were much enraged at the death of Mælius; and, in order to punish the senate, at the next election, instead of consuls, insisted upon restoring their military tribunes. With this the senate were obliged to comply. The next year, however, the government returned to its ancient channel, and consuls were chosen.

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The destruction of Veii resolved.
The Veientes had long been the rivals of Rome; they had ever taken the opportunity of its internal distresses to ravage its territories, and had even threatened its ambassadors, sent to complain of these injuries, with outrage. In war they had been extremely formidable, and had cut off almost all the Fabian family; who, to the number of 306 persons, had voluntarily undertaken to defend the frontiers against their incursions. It seemed now, therefore determined, that the city of Veii, whatever it should cost, was to fall; and the Romans accordingly sat regularly down before

it, prepared for a long and painful resistance. The strength of the place, or the unskillfulness of the besiegers, may be inferred from the continuance of the siege, which lasted for 10 years; during which time the army continued encamped round it, lying in winter under tents made of the skins of beasts, and in summer driving on the operations of the attack. Various was the success, and many were the commanders that directed the siege: sometimes all the besiegers works were destroyed, and many of their men cut off by sallies from the town; sometimes they were annoyed by an army of Veians, who attempted to bring assistance from without. A siege so bloody seemed to threaten depopulation to Rome itself, by draining its forces continually away; so that a law was obliged to be made for all the bachelors to marry the widows of the soldiers who were slain. In order to carry it on with greater vigour, Furius Camillus was created dictator, and to him was intrusted the sole power of managing the long protracted war. Camillus, who, without intrigue or any solicitation, had raised himself to the first eminence in the state, had been made one of the censors some time before, and was considered as the head of that office; he was afterwards made a military tribune, and had in this post gained several advantages over the enemy. It was his great courage and abilities in the above offices that made him thought most worthy to serve his country on this pressing occasion. Upon his appointment, numbers of the people flocked to his standard, confident of success under so experienced a commander. Conscious, however, that he was unable to take the city by storm, he secretly wrought a mine into it with vast labour, which opened into the midst of the citadel. Certain thus of success, and finding the city incapable of relief, he sent to the senate, desiring that all who chose to share in the plunder of Veii should immediately repair to the army. Then giving his men directions how to enter at the breach, the city was instantly filled with his legions, to the amazement and consternation of the besieged, who, but a moment before, had rested in perfect security. Thus, like a second Troy, was the city of Veii taken, after a 10 years siege, and with its spoils enriched the conquerors; while Camillus himself, transported with the honour of having subdued the rival of his native city, triumphed after the manner of the kings of Rome, having his chariot drawn by four milk-white horses; a distinction which did not fail to disgust the majority of the spectators, as they considered those as sacred, and more proper for doing honour to their gods than their generals.

121
His general victory over the Falisci.
His usual good fortune attended Camillus in another expedition against the Falisci; he routed their army, and besieged their capital city Falerii, which threatened a long and vigorous resistance. Here a schoolmaster, who had the care of the children belonging to the principal men of the city, having found means to decoy them into the Roman camp, offered to put them into the hands of Camillus, as the surest means of inducing the citizens to a speedy surrender. The general was struck with the treachery of a wretch whose duty it was to protect innocence, and not to betray it; and immediately ordered him to be stripped, his hands tied behind him, and in that ignominious manner to be whipped into the town by his own scholars.

ome. This generous behaviour in Camillus effected more than his arms could do: the magistrates of the town immediately submitted to the senate, leaving to Camillus the conditions of their surrender; who only fined them in a sum of money to satisfy his army, and received them under the protection and into the alliance of Rome.

Notwithstanding the veneration which the virtues of Camillus had excited abroad, they seemed but little adapted to bring over the respect of the turbulent tribunes at home, as they raised some fresh accusation against him every day. To their other charges they added that of his having concealed a part of the plunder of Veii, particularly two brazen gates, for his own use; and appointed him a day on which to appear before the people. Camillus, finding the multitude exasperated against him upon many accounts, detesting their ingratitude, resolved not to wait the ignominy of a trial; but, embracing his wife and children, prepared to depart from Rome. He had already passed as far as one of the gates, unattended on his way, and unlamented. There he could suppress his indignation no longer; but, turning his face to the capitol, and lifting up his hands to heaven, intreated all the gods that his country might one day be sensible of their injustice and ingratitude; and so saying, he passed forward to take refuge at Ardea, where he afterwards learned that he had been fined 1500 ascs by the tribunes at home.

The Romans indeed soon had reason to repent their usage of Camillus; for now a more formidable enemy than ever they had met with threatened the republic: an inundation of Gauls, leaving their native woods, under the command of one Brennus, wasted every thing with fire and sword. It is said that one Cœditi, a man of the lowest rank, pretended to have heard a miraculous voice, which pronounced distinctly these words: "Go to the magistrates, and tell them that the Gauls draw near." The meanness of the man made his warning despised; though, when the event showed the truth of his prediction, Camillus erected a temple to the unknown Deity, and the Romans invented for him the name of *Aius Locutius*. Messenger after messenger arrived with the news of the progress and devastations of the Gauls; but the Romans behaved with as much security as if it had been impossible for them to have felt the effects of their depredations. At last envoys arrived at Rome, imploring the assistance of the republic against an army of Gauls, which had made an irruption into Italy, and now besieged their city. The occasion of the irruption and siege was this: Arunx, one of the chief men of Clusium in Hetruria, had been guardian to a young Lucumo, or lord of a lucumony, and had educated him in his house from his infancy. The Lucumo, as soon as he was of an age to feel the force of passion, fell in love with his guardian's wife; and, upon the first discovery of their intrigue, conveyed her away. Arunx endeavoured to obtain reparation for the injury he had received; but the Lucumo, by his interest and money, gained over the magistrates: so that the injured guardian, finding no protectors in Hetruria, resolved to make his application to the Gauls. The people among all the Celtic nations, to whom he chose to address himself, were the Senones; and, in order to en-

gage them in his quarrel, he acquainted them with the great plenty of Italy, and made them taste of some Italian wines. Upon this the Senones resolved to follow him; and a numerous army was immediately formed, which passing the Alps, under the conduct of their Hetrurian guide, and leaving the Celts in Italy unmolested, fell upon Umbria, and possessed themselves of all the country from Ravenna to Picenum. They were about six years in settling themselves in their new acquisitions, while the Romans were carrying on the siege of Veii. At length Arunx brought the Senones before Clusium, in order to besiege that place, his wife and her lover having shut themselves up there.

The senate, being unwilling to engage in an open war with a nation which had never offended them, sent an embassy of three young patricians, all brothers, and of the Fabian family, to bring about an accommodation between the two nations. These ambassadors, being arrived at the camp of the Gauls, and conducted into the council, offered the mediation of Rome; and demanded of Brennus, the leader of the Gauls, What injury the Clusini had done him; or what pretensions any people from a remote country could have upon Hetruria? Brennus answered proudly, that his right lay in his sword, and that all things belonged to the brave; but that, without having recourse to this primitive law of nature, he had a just complaint against the Clusians, who, having more lands than they could cultivate, had refused to yield to him those they left untilld: And what other motives had you yourselves, Romans (said he), to conquer so many neighbouring nations? You have deprived the Sabines, the Albans, the Fidenates, the Æqui, and the Volsci, of the best part of their territories. Not that we accuse you of injustice; but it is evident, that you thought this to be the prime and most ancient of all laws, to make the weak give way to the strong. Forbear therefore to interest yourselves for the Clusini, or allow us to take the part of the people you have subdued."

The Fabii were highly provoked at so haughty an answer; but, dissembling their resentment, desired leave to go into the town, under pretence of conferring with the magistrates. But they were no sooner there, than they began to stir up the inhabitants to a vigorous defence; nay, forgetting their character, they put themselves at the head of the besieged in a sally, in which Q. Fabius, the chief of the ambassadors, slew with his own hand one of the principal officers of the Gauls. Hereupon Brennus, calling the gods to witness the perfidiousness of the Romans, and their violating the law of nations, immediately broke up the siege of Clusium, and marched leisurely to Rome, having sent an herald before him to demand that those ambassadors, who had so manifestly violated the law of nations, should be delivered up to him. The Roman senate was greatly perplexed between their regard for the law of nations and their affection for the Fabii. The wisest of the senate thought the demand of the Gauls to be but just and reasonable: however, as it concerned persons of great consequence and credit, the conscript fathers referred the affair to the people assembled by curiæ. As the Fabian family was very popular, the curiæ were so far from condemning the three brothers, that, at the next election of military tribunes, they were chosen the first.

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The Romans send an embassy to them.

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Imprudent conduct of the ambassadors.

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The Gauls require them to be delivered up to them but are refused.

Rome. first. Brennus, looking upon the promotion of the Fabii as an high affront on his nation, hastened his march to Rome.

129
The Romans entirely defeated.

As his army was very numerous, the inhabitants of the towns and villages through which he passed left their habitations at his approach; but he stopped nowhere, declaring that his design was only to be revenged on the Romans. The six military tribunes, to wit, Q. Fabius, Cæso Fabius, Caius Fabius, Q. Sulpitius, Q. Servilius, and Sextus Cornelius, marched out of Rome at the head of 40,000 men, without either sacrificing to the gods or consulting the auspices; essential ceremonies among a people that drew their courage and confidence from the propitious signs which the augurs declared to them. As most of the military tribunes were young, and men of more valour than experience, they advanced boldly against the Gauls, whose army was 70,000 strong. The two armies met near the river Allia, about 60 furlongs from Rome. The Romans, that they might not be surrounded by the enemy, extended their wings so far as to make their centre very thin. Their best troops, to the number of 24,000 men, they posted between the river and the adjoining hills; the rest they placed on the hills. The Gauls first attacked the latter, who being soon put into confusion, the forces in the plain were struck with such terror that they fled without drawing their swords. In this general disorder, most of the soldiers, instead of returning to Rome fled to Veii: some were drowned as they endeavoured to swim across the Tiber; many fell in the pursuit by the sword of the conquerors; and some got to Rome, which they filled with terror and consternation, it being believed there that all the rest were cut off. The day after the battle, Brennus marched his troops into the neighbourhood of Rome, and encamped on the banks of the Anio. Thither his scouts brought him word, that the gates of the city lay open, and that not one Roman was to be seen on the ramparts. This made him apprehensive of some ambuscade, it being unreasonable to suppose that the Romans would abandon their city to be plundered and sacked without making any resistance. On this consideration he advanced slowly, which gave the Romans an opportunity to throw into the Capitol all the men who were fit to bear arms. They carried into it all the provisions they could get; and, that they might last the longer, admitted none into the place but such as were capable of defending it.

130
They retired into the Capitol.

As for the city, they had not sufficient forces to defend it; and therefore the old men, women, and children, seeing themselves abandoned, fled to the neighbouring towns. The Vestals, before they left Rome, took care to hide every thing appropriated to the gods which they could not carry off. The two palladiums, and the sacred fire, they took with them. When they came to the Janiculum, one Albinus, a plebeian, who was conveying his wife and children in a carriage to a place of safety, seeing the sacred virgins bending under their load, and their feet bloody, made his family alight, put the priestesses and their gods into the carriage, and conducted them to Cære, a city of Etruria, where they met with a favourable reception. The Vestals remained at Cære, and there continued to perform the usual rites of religion; and hence those rites were called *cæremonies*. But while the rest of the citizens at Rome were providing for their safety, about 80

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Origin of the word ceremonies.

of the most illustrious and venerable old men, rather than fly from their native city, chose to devote themselves to death by a vow, which Fabius the high pontiff pronounced in their names. The Romans believed, that, by these voluntary devotements to the infernal gods, disorder and confusion was brought among the enemy. Of these brave old men some were pontiffes, others had been consuls, and others generals of armies, who had been honoured with triumphs. To complete their sacrifice with a solemnity and pomp becoming the magnanimity and constancy of the Romans, they dressed themselves in their pontifical, consular, and triumphal robes; and repairing to the forum, seated themselves there in their curule chairs, expecting the enemy and death with the greatest constancy.

At length Brennus, having spent three days in useless precautions, entered the city the fourth day after the battle. He found the gates open, the walls without defence, and the houses without inhabitants. Rome appeared to him like a mere desert; and this solitude increased his anxiety. He could not believe, either that all the Romans were lodged in the Capitol, or that so numerous a people should abandon the place of their nativity. On the other hand, he could nowhere see any armed men but on the walls of the citadel. However, having first secured all the avenues to the Capitol with strong bodies of guards, he gave the rest of his soldiers leave to disperse themselves all over the city and plunder it. Brennus himself advanced into the forum with the troops under his command, in good order; and there he was struck with admiration at the unexpected sight of the venerable old men who had devoted themselves to death. Their magnificent habits, the majesty of their countenances, the silence they kept, their modesty and constancy at the approach of his troops, made him take them for so many deities: for they continued as motionless as statues, and saw the enemy advance without showing the least concern. The Gauls kept a great while at an awful distance from them, being afraid to come near them. But at length one soldier bolder than the rest, having out of curiosity touched the beard of M. Papirius, the venerable old man, not being used to such familiarity, gave him a blow on the head with his ivory staff. The soldier in revenge immediately killed him; and the rest of the Gauls following his example, slaughtered all those venerable old men without mercy.

132
Rome perished and burnt.

After this the enemy set no bounds to their rage and fury. They plundered all places, dragging such of the Romans as had shut themselves up in their houses into the streets, and there putting them to the sword without distinction of age or sex. Brennus then invested the Capitol; but being repulsed with great loss, in order to be revenged of the Romans for their resistance, he resolved to lay the city in ashes. Accordingly, by his command, the soldiers set fire to the houses, demolished the temples and public edifices, and rased the walls to the ground. Thus was the famous city of Rome entirely destroyed; nothing was to be seen in the place where it stood but a few little hills covered with ruins, and a wide waste, in which the Gauls who invested the Capitol were encamped. Brennus, finding he should never be able to take a place which nature had so well fortified otherwise than by famine, turned the siege into a blockade. But in the mean time, his army

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They invaded the Capitol.

Rome. army being distressed for want of provisions, he sent out parties to pillage the fields, and raise contributions in the neighbouring cities. One of these parties appeared before Ardea, where the great Camillus had now spent two years in a private life. Notwithstanding the affront he had received at Rome, the love he bore his country was not in the least diminished. The senate of Ardea being met to deliberate on the measures to be taken with relation to the Gauls, Camillus, more afflicted at the calamities of his country than at his own banishment, desired to be admitted into the council, where, with his eloquence, he prevailed upon the Ardeates to arm their youth in their own defence, and refuse the Gauls admittance into their city.

134
A great number of them cut off by Camillus.
Hereupon the Gauls encamped before the city; and as they despised the Ardeates after they had made themselves masters of Rome, they preferred neither order nor discipline in the camp, but spent whole days in drinking. Hereupon Camillus, having easily persuaded the youth of the city to follow him, marched out of Ardea in a very dark night, surprised the Gauls drowned in wine, and made a dreadful slaughter of them. Those who made their escape under the shelter of the night fell next day into the hands of the peasants, by whom they were massacred without mercy. This defeat of the enemy revived the courage of the Romans scattered about the country, especially of those who had retired to Veii after the unfortunate battle of Allia. There was not one of them who did not condemn himself for the exile of Camillus, as if he had been the author of it; and looking upon that great man as their last resource, they resolved to choose him for their leader. Accordingly, they sent without delay ambassadors to him, beseeching him to take into his protection the fugitive Romans, and the wrecks of the defeat at Allia. But Camillus would not accept of the command of the troops till the people assembled by curiæ had legally conferred it upon him. He thought the public authority was lodged in the hands of those who were shut up in the citadel, and therefore would undertake nothing at the head of the Roman troops till a commission was brought him from thence.

135
He is chosen dictator.
To do this was very difficult, the place being invested on all sides by the enemy. However, one Pontius Cominius, a man of mean birth, but bold, and very ambitious of glory, undertook it. He put on a light habit, and, providing himself with cork to keep the longer above water, threw himself into the Tiber above Rome in the beginning of the night, and suffered himself to be carried down with the stream. At length he came to the foot of the capitol, and landed at a steep place where the Gauls had not thought it necessary to post any centinels. There he mounted with great difficulty to the rampart of the citadel; and having made himself known to the guards, he was admitted into the place, and conducted to the magistrates. The senate being immediately assembled, Pontius gave them an account of Camillus's victory; and in the name of all the Romans at Veii demanded that great captain for their general. There was not much time spent in debates: the curiæ being called together, the act of condemnation which had been passed on Camillus was abrogated, and he named dictator with one voice. Pontius was immediately dispatched with the decree; and the same good fortune which had attended him to the capitol accom-

panied him in his return. Thus was Camillus, from the state of banishment, raised at once to be sovereign magistrate of his country. His promotion to the command was no sooner known, but soldiers flocked from all parts to his camp; insomuch that he soon saw himself at the head of above 40,000 men, partly Romans and partly allies, who all thought themselves invincible under so great a general.

136
The Gauls endeavour to surprise the Capitol;
While he was taking proper measures to raise the blockade of the citadel, some Gauls rambling round the place, perceived on the side of the hill the print of Pontius's hands and feet. They observed likewise, that the moss on the rocks was in several places torn up. From these marks they concluded, that somebody had lately gone up to and returned from the capitol. The Gauls immediately made their report to Brennus of what they had observed; and that experienced commander laid a design, which he imparted to nobody, of surprising the place by the same way that the Roman had ascended. With this view he chose out of the army such soldiers as had dwelt in mountainous countries, and been accustomed from their youth to climb precipices. These he ordered, after he had well examined the nature of the place, to ascend in the night the same way that was marked out for them; climbing two abreast, that one might support the other in getting up the steep parts of the precipice. By this means they advanced with much difficulty from rock to rock, till they arrived at the foot of the wall. They proceeded with such silence, that they were not discovered or heard, either by the centinels who were upon guard in the citadel, or even by the dogs, that are usually awaked and alarmed at the least noise. But though they eluded the sagacity of the dogs, they could not escape the vigilance of the geese. A flock of these birds was kept in a court of the capitol in honour of Juno, and near her temple. Notwithstanding the want of provisions in the garrison, they had been spared out of religion; and as these creatures are naturally quick of hearing, they were alarmed at the first approach of the Gauls; so that running up and down, with their cackling and beating of their wings, they awaked Manlius, a gallant soldier, who some years before had been consul. He founded an alarm, and was the first man who mounted the rampart, where he found two Gauls already upon the wall. One of these offered to discharge a blow at him with his battle-ax; but Manlius cut off his right hand at one blow, and gave the other such a push with his buckler, that he threw him headlong from the top of the rock to the bottom. He, in his fall, drew many others with him; and, in the mean time, the Romans crowding to the place, pressed upon the Gauls, and tumbled them one over another. As the nature of the ground would not suffer them to make a regular retreat, or even to fly, most of them, to avoid the swords of the enemy, threw themselves down the precipice, so that very few got safe back to their camp.

137
But are dispersed and repulsed.
As it was the custom of the Romans at that time not to suffer any commendable action to go unrewarded, the tribune Sulpitius assembled his troops the next morning, in order to bestow the military rewards on those who, the night before, had deserved them. Among these Manlius was first named; and, in acknowledgment of the important service he had just rendered the state, every soldier gave him part of the corn which he received.

ved sparingly from the public stock, and a little measure of wine out of his scanty allowance. An inconsiderable present indeed in itself, but very acceptable at that time to the person on whom it was bestowed. The tribune's next care was to punish the negligent: accordingly the captain of the guard, who ought to have had an eye over the centinels, was condemned to die, and, pursuant to his sentence, thrown down from the top of the capitol. The Romans extended their punishments and rewards even to the animals. Geese were ever after had in honour at Rome, and a flock of them always kept at the expence of the public. A golden image of a goose was erected in memory of them, and a goose every year carried in triumph upon a soft litter finely adorned; whilst dogs were held in abhorrence by the Romans, who every year impaled one of them on a branch of elder.

The blockade of the Capitol had already lasted seven months; so that the famine began to be very sensibly felt both by the besieged and besiegers. Camillus, since his nomination to the dictatorship, being master of the country, had posted strong guards on all the roads; so that the Gauls dared not stir out for fear of being cut to pieces. Thus Brennus, who besieged the Capitol, was besieged himself, and suffered the same inconveniences which he made the Romans undergo. Besides, a plague raged in his camp, which was placed in the midst of the ruins of the demolished city, his men lying confusedly among the dead carcases of the Romans, whom they had slain, and not buried. So great a number of them died in one quarter of the city, that it was afterwards called *Busta Gallica*, or the place where the dead bodies of the Gauls were burnt. But, in the mean time, the Romans in the Capitol were more pinched with want than the Gauls. They were reduced to the last extremity, and at the same time ignorant both of the lamentable condition to which the enemy's army was brought, and of the steps Camillus was taking to relieve them. That great general only waited for a favourable opportunity to fall upon the enemy; but, in the mean time, suffered them to pine away in their infected camp, not knowing the extreme want the Romans endured in the Capitol, where they were so destitute of all sorts of provisions, that they could no longer subsist. Matters being brought to this sad pass on both sides, the centinels of the Capitol, and those of the enemy's army, began to talk to one another of an accommodation. Their discourses came at length to the ears of their leaders, who were not averse to the design.

The senate, not knowing what was become of Camillus, and finding themselves hard pinched by hunger, resolved to enter upon a negotiation, and empowered Sulpitius, one of the military tribunes, to treat with the Gauls; who made no great difficulty in coming to terms, they being no less desirous than the Romans to put an end to the war. In a conference, therefore, between Brennus and Sulpitius, an agreement was made, and sworn to. The Romans were to pay to the Gauls 1000 pounds weight of gold, that is, 45,000*l.* Sterling; and the latter were to raise the siege of the Capitol, and quit all the Roman territories. On the day appointed, Sulpitius brought the sum agreed on, and Brennus the scales and weights; for there were no gold or silver coins at that time, metals passing only by

weight. We are told, that the weights of the Gauls were false, and their scales untrue; which Sulpitius complaining of, Brennus, instead of redressing the injustice, threw his sword and belt into the scale where the weights were; and when the tribune asked him the meaning of so extraordinary a behaviour, the only answer he gave was, *Vae victis!* "Woe to the conquered!" Sulpitius was so stung with this haughty answer, that he was for carrying the gold back into the Capitol, and sustaining the siege to the last extremity; but others thought it advisable to put up the affront, since they had submitted to a far greater one, which was to pay any thing at all.

During these disputes of the Roman deputies among themselves and with the Gauls, Camillus advanced with his army to the very gates of the city; and being there informed of what was doing, he commanded the main body to follow him slowly and in good order, while he, with the choicest of his men, hastened to the place of the parley. The Romans, overjoyed at his unexpected arrival, opened to make room for him as the supreme magistrate of the republic, gave him an account of the treaty they had made with the Gauls, and complained of the wrong Brennus did them in the execution of it. They had scarce done speaking, when Camillus cried out, "Carry back this gold into the Capitol; and you, Gauls, retire with your scales and weights. Rome must not be redeemed with gold, but with steel. Brennus replied, That he contravened a treaty which was concluded and confirmed with mutual oaths. "Be it so (answered Camillus); yet it is of no force, having been made by an inferior magistrate, without the privacy or consent of the dictator. I, who am invested with the supreme authority over the Romans, declare the contract void." At these words Brennus flew into a rage; and both sides drawing their swords, a confused scuffle ensued among the ruins of the houses, and in the narrow lanes. The Gauls, after an inconsiderable loss, thought fit to retire within their camp; which they abandoned in the night, not caring to engage Camillus's whole army, and, having marched eight miles, encamped on the Gabinian way. Camillus pursued them as soon as it was day, and, coming up with them, gave them a total overthrow. The Gauls, according to Livy, made but a faint resistance, being disheartened at the loss they had sustained the day before. It was not, says that author, so much a battle as a slaughter. Many of the Gauls were slain in the action, more in the entirely confused pursuit; but the greater number were cut off, as they wandered up and down in the fields, by the inhabitants of the neighbouring villages. In short, there was not one single Gaul left to carry to his countrymen the news of this fatal catastrophe. The camp of the barbarians was plundered; and Camillus, loaded with spoils, returned in triumph to the city, the soldiers in their songs styling him, *Romulus, Father of his country, and Second founder of Rome.*

As the houses of Rome were all demolished, and the walls razed, the tribunes of the people renewed, with more warmth than ever, an old project which had occasioned great disputes. They had formerly proposed a law for dividing the senate, and government between the cities of Veii and Rome. Now this law was revived; nay, most of the tribunes were for entirely abandoning their old ruined city, and making Veii the sole seat

138
The Romans agree to pay 1000 pounds of gold for their ransom.

139
Camillus drives away the Gauls.

140
The Gauls are entirely cut off.

141
Disputes about removing to Veii.

Rome. **feat of the empire.** The people were inclined to favour the project, Veii offering them a place fortified by art and nature, good houses ready built, a wholesome air, and a fruitful territory. On the other hand, they had no materials for rebuilding a whole city, were quite exhausted by misfortunes, and even their strength was greatly diminished. This gave them a reluctance to so great an undertaking, and emboldened the tribunes to utter seditious harangues against Camillus, as a man too ambitious of being the restorer of Rome. They even insinuated that the name of Romulus, which had been given him, threatened the republic with a new king. But the senate took the part of Camillus, and, being desirous to see Rome rebuilt, continued him, contrary to custom, a full year in the office of dictator; during which time he made it his whole business to suppress the strong inclination of the people to remove to Veii. Having assembled the curia, he expostulated with them upon the matter; and, by arguments drawn from prudence, religion, and glory, prevailed upon them to lay aside all thoughts of leaving Rome. As it was necessary to have the resolution of the people confirmed by the senate, the dictator reported it to the conscript fathers, leaving every one at full liberty to vote as he pleased. While L. Lucretius, who was to give his opinion the first, was beginning to speak, it happened that a centurion, who with his company had been upon guard, and was then marching by the senate-house, cried out aloud, "Plant your colours, ensign; this is the best place to stay in." These words were considered as dictated by the gods themselves; and Lucretius, taking occasion from them, to urge the necessity of staying at Rome, "An happy omen, (cried he); I adore the gods who gave it." The whole senate applauded his words; and a decree was passed without opposition for rebuilding the city.

Though the tribunes of the people were defeated by Camillus in this point, they resolved to exercise their authority against another patrician, who had indeed deserved punishment. This was Q. Fabius, who had violated the law of nations, and thereby provoked the Gauls, and occasioned the burning of Rome. His crime being notorious, he was summoned by C. Martius Rutilius before the assembly of the people, to answer for his conduct in his embassy. The criminal had reason to fear the severest punishment: but his relations gave out that he died suddenly; which generally happened when the accused person had courage enough to prevent his condemnation, and the shame of a public punishment. On the other hand, the republic gave an house situated on the Capitol to M. Manlius, as a monument of his valour, and of the gratitude of his fellow-citizens. Camillus closed this year by laying down his dictatorship: whereupon an interregnum ensued, during which he governed the state alternately with R. Cornelius Scipio; and it fell to his lot to preside at the election of new magistrates, when L. Valerius Poplicola, L. Virginus Tricostus, P. Cornelius Cossus, A. Manlius Capitolinus, L. Æmilius Mamercinus, and L. Posthumus Albinus, were chosen. The first care of these new magistrates was to collect all the ancient monuments of the religion and civil laws of Rome which could be found among the ruins of the demolished city. The laws of the twelve tables, and some of the laws of the kings, had been written on brass, and

fixed up in the forum; and the treaties made with several nations had been engraved on pillars erected in the temples. Pains were therefore taken to gather up the ruins of these precious monuments; and what could not be found was supplied by memory. The pontifices, on their part, took care to re-establish the religious ceremonies, and made also a list of lucky and unlucky days.

And now the governors of the republic applied themselves wholly to rebuild the city. Plutarch tells us, that as the workmen were digging among the ruins of the temple of Mars, they found Romulus's augural staff untouched by the flames; and that this was looked upon as a prodigy, from whence the Romans inferred that their city would continue for ever. The expence of building private houses was partly defrayed out of the public treasure. The ædiles had the direction of the works; but they had so little taste for order or beauty, that the city, when rebuilt, was even less regular than in the time of Romulus. And though in Augustus's time, when Rome became the capital of the known world, the temples, palaces, and private houses, were built in a more magnificent manner than before; yet even then these new decorations did not rectify the faults of the plan upon which the city had been built after its first demolition.

Rome was scarce restored, when her citizens were alarmed by the news that all her neighbours were combining to her destruction. The Æqui, the Volsci, the Hetrurians, and even her old friends the Latins and the Hernici, entered into an alliance against her, in hopes of oppressing her before she had recovered her strength. The republic, under this terror, nominated Camillus dictator a third time. This great commander, having appointed Servilius to be his general of horse, summoned the citizens to take arms, without excepting even the old men. He divided the new levies into three bodies. The first, under the command of A. Manlius, he ordered to encamp under the walls of Rome; the second he sent into the neighbourhood of Veii; and marched himself at the head of the third, to relieve the tribunes, who were closely besieged in their camp by the united forces of the Volsci and Latins. Finding the enemy encamped near Lanavium, on the declivity of the hill Marcius, he posted himself behind it, and, by lighting fires, gave the distressed Romans notice of his arrival. The Volsci and Latins, when they understood that Camillus was at the head of an army newly arrived, were so terrified, that they shut themselves up in their camp, which they fortified with great trees cut down in haste. The dictator, observing that this barrier was of green wood, and that every morning there arose a great wind, which blew full upon the enemy's camp, formed the design of taking it by fire. With this view he ordered one part of his army to go by break of day with fire-brands to the windward side of the camp, and the other to make a brisk attack on the opposite side. By this means the enemy were entirely defeated, and their camp taken. Camillus then commanded his men to extinguish the flames, in order to save the booty, with which he rewarded his army. He then left his son in the camp to guard the prisoners; and, entering the country of the Æqui, made himself master of their capital city Bola. From thence he marched against the Volsci, whom

R. me.

whom he entirely reduced, after they had waged war with the Romans for the space of 107 years. Having subdued this untractable people, he penetrated into Hetruria, in order to relieve Sutrium, a town in that country in alliance with Rome, and besieged by a numerous army of Hetrurians. But, notwithstanding all the expedition Camillus could use, he did not reach the place before it had capitulated. The Sutrini, being greatly distressed for want of provisions, and exhausted with labour, had surrendered to the Hetrurians, who had granted them nothing but their lives, and the cloaths on their backs. In this destitute condition they had left their own country, and were going in search of new habitations, when they met Camillus leading an army to their relief.

146
And the
Hetrurians.

The unfortunate multitude no sooner saw the Romans, but they threw themselves at the dictator's feet, who, moved at this melancholy sight, desired them to take a little rest, and refresh themselves, adding, that he would soon dry up their tears, and transfer their sorrows from them to their enemies. He imagined, that the Hetrurians would be wholly taken up in plundering the city, without being upon their guard, or observing any discipline. And herein he was not mistaken. The Hetrurians did not dream that the dictator could come so speedily from such a distance to surprise them; and therefore were wholly employed in plundering the houses and carrying off the booty, or feasting on the provisions they had found in them. Many of them were put to the sword, and an incredible number made prisoners; and the city was restored to its ancient inhabitants, who had not waited in vain for the performance of the dictator's promise. And now, after these glorious exploits, which were finished in so short a time, the great Camillus entered Rome in triumph a third time.

Camillus having resigned his dictatorship, the republic chose six new military tribunes, Q. Quinctius, Q. Servius, L. Julius, L. Aquilius, L. Lucretius, and Ser. Sulpitius. During their administration the country of the Æqui was laid waste, in order to put it out of their power to revolt anew; and the two cities of Cortuosa and Contenebra, in the lucumony of the Tarquinienfes, were taken from the Hetrurians, and entirely demolished. At this time it was thought proper to repair the Capitol, and add new works to that part of the hill where the Gauls had endeavoured to scale the citadel. These works were esteemed very beautiful, as Livy informs us, even in the time of Augustus, after the city was embellished with most magnificent decorations.

And now Rome being reinstated in her former flourishing condition, the tribunes of the people, who had been for some time quiet, began to renew their seditious harangues, and revive the old quarrel about the division of the conquered lands. The patricians had appropriated to themselves the Pomptin territory lately taken from the Volsci, and the tribunes laid hold of this opportunity to raise new disturbances. But the citizens being so drained of their money that they had not enough left to cultivate new farms and stock them with cattle, the declamations of the tribunes made no impression upon their minds; so that the project vanished. As for the military tribunes, they owned that their election had been defective; and, lest the irregularities of the former comitia should be continued in the suc-

ceeding ones, they voluntarily laid down their office. So that, after a short interregnum, during which M. Manlius, Ser. Sulpitius, and L. Valerius Potitus, governed the republic, six new military tribunes L. Papirius, C. Sergius, L. Æmilius, L. Menenius, L. Valerius, and C. Cornelius, were chosen for the ensuing year, which was spent in works of peace. A temple, which had been vowed to Mars during the war with the Gauls, was built, and consecrated by T. Quinctius, who presided over the affairs of religion. As there had hitherto been but few Roman tribes beyond the Tiber which had a right of suffrage in the comitia, four new ones were added, under the name of the *Stellatina*, *Tramontina*, *Sabatina*, and *Arniensis*; so that the tribes were now in all 25, which enjoyed the same rights and privileges.

Rome.

The expectation of an approaching war induced the centuries to choose Camillus one of the military tribunes for the next year. His colleagues were Ser. Cornelius, Q. Servilius, L. Quinctius, L. Horatius, and P. Valerius. As all these were men of moderation, they agreed to invest Camillus with the sole management of affairs in time of war; and accordingly in full senate transferred all their power into his hands; so that he became in effect dictator. It had been already determined in the senate to turn the arms of the republic against the Hetrurians; but, upon advice that the Antiates had entered the Pomptin territory, and obliged the Romans who had taken possession of it to retire, it was thought necessary to humble them before the republic engaged in any other enterprise. The Antiates had joined the Latins and Hernici near Satricum; so that the Romans, being terrified at their prodigious numbers, shewed themselves very backward to engage: which Camillus perceiving, he instantly mounted his horse, and riding through all the ranks of the army, encouraged them by a proper speech; after which he dismounted, took the next standard-bearer by the hand, led him towards the enemy, and cried out, *Soldiers, advance*. The soldiery were ashamed not to follow a general who exposed himself to the first attack; and therefore, having made a great shout, they fell upon the enemy with incredible fury. Camillus, in order to increase their eagerness still more, commanded a standard to be thrown into the middle of the enemy's battalions; which made the soldiers, who were fighting in the first ranks, exert all the resolution they could to recover it. The Antiates, not being able any longer to make head against the Romans, gave way, and were entirely defeated. The Latins and Hernici separated from the Volsci, and returned home. The Volsci, seeing themselves thus abandoned by their allies, took refuge in the neighbouring city of Satricum; which Camillus immediately invested, and took by assault. The Volsci threw down their arms, and surrendered at discretion. He then left his army under the command of Valerius; and returned to Rome to solicit the consent of the senate, and to make the necessary preparations for undertaking the siege of Antium.

147
Unbounded
power com-
ferred on
Camillus,

148
Who gives
the Anti-
ates, &c. a
great de-
feat.

But, while he was proposing this affair to the senate, deputies arrived from Nepes and Sutrium, two cities in alliance with Rome in the neighbourhood of Hetruria, demanding succours against the Hetrurians, who threatened to besiege these two cities, which were the keys of Hetruria. Hereupon the expedition against Antium

149
His other
successes,

Rome.

Antium was laid aside, and Camillus commanded to hasten to the relief of the allied cities, with the troops which Servilius had kept in readiness at Rome in case of an emergency. Camillus immediately set out for the new war; and, upon his arrival before Sutrium, found that important place not only besieged, but almost taken, the Heturians having made themselves masters of some of the gates, and gained possession of all the avenues leading to the city. However, the inhabitants no sooner heard that Camillus was come to their relief, but they recovered their courage, and, by barricadoes made in the streets, prevented the enemy from making themselves masters of the whole city. Camillus in the mean time having divided his army into two bodies, ordered Valerius to march round the walls, as if he designed to scale them, while he with the other undertook to charge the Heturians in the rear, force his way into the city, and shut up the enemy between the besieged and his troops. The Romans no sooner appeared but the Heturians betook themselves to a disorderly flight through a gate which was not invested, Camillus's troops made a dreadful slaughter of them within the city, while Valerius put great numbers of them to the sword without the walls. From reconquering Sutrium, Camillus hastened to the relief of Nepes. But that city being better affected to the Heturians than to the Romans, had voluntarily submitted to the former. Wherefore Camillus, having invested it with his whole army, took it by assault, put all the Heturian soldiers without distinction to the sword, and condemned the authors of the revolt to die by the axes of the lictors. Thus ended Camillus's military tribuneship, in which he acquired no less reputation than he had done in the most glorious of his dictatorships.

150
Ambition
of M. Man-
lius,

In the following magistracy of six military tribunes, a dangerous sedition is said to have taken place through the ambition of Marcus Manlius, who had saved the capitol from the Gauls in the manner already related. Though this man had pride enough to despise all the other great men in Rome, yet he envied Camillus, and took every opportunity of magnifying his own exploits beyond those of the dictator. But not finding such a favourable reception from the nobility as he desired, he concerted measures with the tribunes of the people, and strove to gain the affections of the multitude. Not content with renewing the proposal for the distribution of conquered lands, he also made himself an advocate for insolvent debtors, of whom there was now a great number, as most of the lower class had been obliged to borrow money in order to rebuild their houses. The senate, alarmed at this opposition, created A. Cornelius Cossus dictator, for which the war with the Volsci afforded them a fair pretence. Manlius, however, still continued to inflame the people against the patricians. Besides the most unbounded personal generosity, he held assemblies at his own house (in the citadel), where he confidently gave out that the senators, not content with

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being the possessors of those lands which ought to have been equally divided among all the citizens, had concealed, with an intent to appropriate it to their own use, all the gold which was to have been paid to the Gauls, and which would alone be sufficient to discharge the debts of all the poor plebeians; and he moreover promised to show in due time where this treasure was concealed. For this assertion he was brought before the dictator; who commanded him to discover where the pretended treasure was, or to confess openly before the whole assembly that he had slandered the senate.—Manlius replied, that the dictator himself, and the principal persons in the senate, could only give the proper intelligence of this treasure, as they had been the most active in securing it. Upon this he was committed to prison; but the people made such disturbance, that the senate were soon after fain to release him. By this he was emboldened to continue his former practices; till at last the senate gave an order to the military tribunes to take care that the commonwealth suffered no detriment from the pernicious projects of Marcus Manlius, and even gave them authority to assassinate him, if they found it necessary so to do. At last, however, he was publicly accused of aspiring to be king; however, the people, it is said, were so struck with gratitude, on account of his having delivered the capitol from the Gauls, that they could not resolve to condemn him. But the military tribunes, who, it seems, were bent on his destruction, having appointed the assembly to be held without the city, there obtained their wish. Manlius was thrown headlong from the capitol itself: it was thenceforth decreed that no patrician should dwell in the capitol or citadel; and the Manlian family resolved that no member of it should ever afterwards bear the prænomen of *Marcus*. No sooner was Manlius dead, however, than the people lamented his fate; and because a plague broke out soon after, they imputed it to the anger of the gods on account of the destruction of the hero who had saved the state (A).

The Romans, having now triumphed over the Sabines, the Etrurians, the Latins, the Hernici, the Æqui, and the Volscians, began to look for greater conquests. They accordingly turned their arms against the Samnites, a people about 100 miles east from the city, descended from the Sabines, and inhabiting a large tract of southern Italy, which at this day makes a considerable part of the kingdom of Naples. Valerius Corvus and Cornelius were the two consuls, to whose care it first fell to manage this dreadful contention between the rival states.

Valerius was one of the greatest commanders of his time; he was surnamed Corvus, from a strange circumstance of being assisted by a crow in a single combat, in which he fought and killed a Gaul of a gigantic stature. To his colleague's care it was consigned to lead an army to Samnium, the enemy's capital; while Corvus was sent to relieve Capua, the capital of the

Rome.

151
Who is
condemned
and execu-
ted.

152
War with the Sam-
nites.

Z z

Cam-

(A) The above accounts are exactly conformable to what is to be found in the best Latin historians; nevertheless they are far from being reckoned universally authentic. Mr Hooke, in his annotations on the death of M. Manlius, has given very strong reasons against believing either that Camillus rescued the gold from the Gauls, or that Manlius was condemned. See *Hooke's Roman History*, Vol. II. p. 326, et seq.

Rome.

Campanians. The Samnites were the bravest men the Romans had ever yet encountered, and the contention between the two nations was managed on both sides with the most determined resolution. But the fortune of Rome prevailed; the Samnites at length fled, averring, that they were not able to withstand the fierce looks and the fire-darting eyes of the Romans. The other consul, however, was not at first so fortunate; for having unwarily led his army into a defile, he was in danger of being cut off, had not Decius, a tribune of the army, possessed himself of an hill which commanded the enemy: so that the Samnites, being attacked on either side, were defeated with great slaughter, no less than 30,000 of them being left dead upon the field of battle.

Some time after this victory, the soldiers who were stationed at Capua mutinying, forced Quintius, an old and eminent soldier, who was then residing in the country, to be their leader; and, conducted by their rage more than their general, came within eight miles of the city. So terrible an enemy, almost at the gates, not a little alarmed the senate; who immediately created Valerius Corvus dictator, and sent him forth with another army to oppose them. The two armies were now drawn up against each other, while fathers and sons beheld themselves prepared to engage in opposite causes; but Corvus, knowing his influence among the soldiery, instead of going forward to meet the mutineers in an hostile manner, went with the most cordial friendship to embrace and expostulate with his old acquaintances. His conduct had the desired effect. Quintius, as their speaker, only desired to have their defection from their duty forgiven; and as for himself, as he was innocent of their conspiracy, he had no reason to solicit pardon for his offences.

A war between the Romans and the Latins followed soon after; but as their habits, arms, and language, were the same, the most exact discipline was necessary to prevent confusion in the engagement. Orders, therefore, were issued by Manlius the consul, that no soldier should leave his ranks upon whatever provocation; and that he should be certainly put to death who should offer to do otherwise. With these injunctions, both armies were drawn out in array, and ready to begin; when Metius, the general of the enemy's cavalry, pushed forward from his lines, and challenged any knight in the Roman army to single combat. For some time there was a general pause, no soldier offering to disobey his orders, till Titus Manlius, the consul's own son, burning with shame to see the whole body of the Romans intimidated, boldly sallied out against his adversary. The soldiers on both sides for a while suspended the general engagement to be spectators of this fierce encounter. Manlius killed his adversary; and then despoiling him of his armour, returned in triumph to his father's tent, where he was preparing and giving orders relative to the engagement. Howsoever he might have been applauded by his fellow-soldiers, being as yet doubtful of the reception he should find from his father, he came, with hesitation, to lay the enemy's spoils at his feet, and with a modest air insinuated, that what he did was entirely from a spirit of hereditary virtue. But he was soon dreadfully made sensible of his error, when his father, turning away, ordered him to be led publicly forth before the army, and there to

have his head struck off on account of his disobeying orders. The whole army was struck with horror at this unnatural mandate: fear for a while kept them in suspense; but when they saw their young champion's head struck off, and his blood streaming upon the ground, they could no longer contain their execrations and their groans. His dead body was carried forth without the camp, and being adorned with the spoils of the vanquished enemy, was buried with all the pomp of military distress.

In the mean time, the battle joined with mutual A bloody battle with the Latins, fury; and as the two armies had often fought under the same leaders, they combated with all the animosity of a civil war. The Latins chiefly depended on their bodily strength; the Romans, on their invincible courage and conduct. Forces so nearly matched seemed only to require the protection of their deities to turn the scale of victory; and, in fact, the augurs had foretold, that whatever part of the Roman army should be distressed, the commander of that part should devote himself for his country, and die as a sacrifice to the immortal gods. Manlius commanded the right wing, and Decius led on the left. Both sides fought for some time with doubtful success, as their courage was equal; but, after a time, the left wing of the Roman army began to give ground. It was then that Decius, who commanded there, resolved to devote himself for his country, and to offer his own life as an atonement to save his army. Thus determined, he called out to Manlius with a loud voice, and demanded his instructions, as he was the chief pontiff, how to devote himself, and the form of the words he should use. By his directions, therefore, being clothed in a long robe, his head covered, and his arms stretched forward, standing upon a javelin, he devoted himself to the celestial and infernal gods for the safety of Rome. Then arming himself, and mounting on horseback, he drove furiously into the midst of the enemy, carrying terror and consternation wherever he came, till he fell covered with wounds. In the mean time, the Roman army considered his devoting himself in this manner as an assurance of success; nor was the superstition of the Latins less powerfully influenced by his resolution; a total rout began to ensue: the Romans pressed them on every side; and so great was the carnage, that scarce a fourth part of the enemy survived the defeat. This was the last battle of any consequence that the Latins had with the Romans: they were forced to beg a peace upon hard conditions; and two years after, their strongest city, Pædum, being taken, they were brought under an entire submission to the Roman power.

A signal disgrace which the Romans sustained about this time in their contest with the Samnites, made a pause in their usual good fortune, and turned the scale for a while in the enemy's favour. The senate having denied the Samnites peace, Pontius their general was resolved to gain by stratagem what he had frequently lost by force. Accordingly, leading his army into a defile called *Claudium*, and taking possession of all its outlets, he sent 10 of his soldiers, habited like shepherds, with directions to throw themselves in the way the Romans were to march. The Roman consul met them, and taking them for what they appeared, demanded the route the Samnite army had taken; they, with seeming indifference, replied, that they were gone to Luceria, a town

153.

A bloody battle with the Latins,

154.

Who are totally defeated and subdued.

Rome.

town in Apulia, and were then actually besieging it. The Roman general, not suspecting the stratagem that was laid against him, marched directly by the shortest road, which lay through the defiles, to relieve the city; and was not undeceived till he saw his army surrounded, and blocked up on every side. Pontius thus having the Romans entirely in his power, first obliged the army to pass under the yoke, having been previously stripped of all but their garments; he then stipulated that they should wholly quit the territories of the Samnites, and that they should continue to live upon terms of former confederacy. The Romans were constrained to submit to this ignominious treaty, and marched into Capua disarmed and half naked. When the army arrived at Rome, the whole city was most surprisingly afflicted at their shameful return; nothing but grief and resentment was to be seen, and the whole city was put into mourning.

But this was a transitory calamity: the war was carried on as usual for many years; the power of the Samnites declining every day, while that of the Romans continually increased. Under the conduct of Papirius Cursor, who was at different times consul and dictator, repeated triumphs were gained. Fabius Maximus also had his share in the glory of conquering them; and Decius, the son of that Decius whom we saw devoting himself for his country about 40 years before, followed the example of his father, and rushed into the midst of the enemy, imagining that he could save the lives of his countrymen with the loss of his own.

The success of the Romans against the Samnites alarmed all Italy. The Tarentines in particular, who had long plotted underhand against the republic, now openly declared themselves; and invited into Italy Pyrrhus king of Epirus, in hopes of being able by his means to subdue the Romans. The offer was readily accepted by that ambitious monarch, who had nothing less in view than the conquest of all Italy.— Their ambassadors carried magnificent presents for the king, with instructions to acquaint him, that they only wanted a general of fame and experience; and that, as for troops, they could themselves furnish a numerous army of 20,000 horse and 350,000 foot, made up of Lucanians, Messapians, Samnites, and Tarentines. As soon as the news of this deputation were brought to the Roman camp, Æmilius, who had hitherto made war on the Tarentines but gently, in hopes of adjusting matters by way of negotiation, took other measures, and began to commit all sorts of hostilities. He took cities, stormed castles, and laid the whole country waste, burning and destroying all before him. The Tarentines brought their army into the field; but Æmilius soon obliged them to take refuge within their walls. However, to induce them to lay aside the design of receiving Pyrrhus, he used the prisoners he had taken with great moderation, and even sent them back without ransom. These highly extolled the generosity of the consul, inasmuch that many of the inhabitants were brought over to the Roman party, and they all began to repent of their having rejected a peace and sent for Pyrrhus.

But, in the mean time, the Tarentine ambassadors arriving in Epirus, pursuant to the powers they had received, made an absolute treaty with the king; who

immediately sent before him the famous Cyneas, with 3000 men, to take possession of the citadel of Tarentum. This eloquent minister soon found means to depose Agis, whom the Tarentines had chosen to be their general and the governor of the city, though a sincere friend to the Romans. He likewise prevailed upon the Tarentines to deliver up the citadel into his hands; which he no sooner got possession of, than he dispatched messengers to Pyrrhus, soliciting him to hasten his departure for Italy. In the mean time, the consul Æmilius, finding that he could not attempt any thing with success against the Tarentines this campaign, resolved to put his troops into winter-quarters in Apulia, which was not far from the territory of Tarentum, that was soon to become the seat of the war. As he was obliged to pass through certain defiles, with the sea on one side and high hills on the other, he was there attacked by the Tarentines and Epirots from great numbers of barks fraught with ballistæ (that is, engines for throwing stones of a vast weight), and from the hills, on which were posted a great many archers and slingers. Hereupon Æmilius placed the Tarentine prisoners between him and the enemy; which the Tarentines perceiving, soon left off molesting the Romans, out of compassion to their own countrymen; so that the Romans arrived safe in Apulia, and there took up their winter-quarters.

The next year Æmilius was continued in the command of his own troops, with the title of *proconsul*; and was ordered to make war upon the Salentines, who had declared for the Tarentines. The present exigence of affairs obliged the Romans to enlist the proletarii, who were the meanest of the people, and therefore by way of contempt called *proletarii*, as being thought incapable of doing the state any other service than that of peopling the city, and stocking the republic with subjects. Hitherto they had never been suffered to bear arms; but were now, to their great satisfaction, enrolled as well as others. In the mean time Pyrrhus arrived at Tarentum, having narrowly escaped shipwreck; and being conducted into the city by his faithful Cyneas, was received there with loud acclamations.

The Tarentines, who were entirely devoted to their pleasures, expected that he should take all the fatigues of the war on himself, and expose only his Epirots to danger. And indeed Pyrrhus for some days dissembled his design, and suffered the Tarentines to indulge without restraint in their usual diversions. But his ships, which had been dispersed all over the Ionian sea, arriving one after another, and with them the troops which he had put on board at Epirus, he began to reform the disorders that prevailed in the city. The theatre was the place to which the idle Tarentines resorted daily in great numbers, and where the incendiaries stirred up the people to sedition with their harangues; he therefore caused it to be shut up, as he did likewise the public gardens, porticoes, and places of exercise, where the inhabitants used to entertain themselves with news, and speak with great freedom of their governors, censuring their conduct, and settling the government according to their different humours, which occasioned great divisions, and rent the city into various factions. As they were a very voluptuous and indolent people, they spent whole days and nights in feasts, masquerades, plays, &c. These therefore Pyrrhus ab-

Rome.

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Pyrrhus
king of
Epirus in-
vited into
Italy by
the Taren-
tines.

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Pyrrhus
obliges the
Tarentines
to learn the
art of war.

Rome.

solutely prohibited, as no less dangerous than the assemblies of prating politicians. They were utter strangers to military exercises, and the art of handling arms; but Pyrrhus having caused an exact register to be made of all the young men who were fit for war, picked out the strongest amongst them, and incorporated them among his own troops, saying, that he would take it upon himself to give them courage. He exercised them daily for several hours; and on that occasion behaved with an inexorable severity, inflicting exemplary punishment on such as did not attend or failed in their duty. By these wise measures he prevented seditions among the citizens, and inured their youth to military discipline; and because many, who had not been accustomed to such severity and rigour, withdrew from their native country, Pyrrhus, by a public proclamation, declared all those capitally guilty who should attempt to abandon their country, or absent themselves from the common musters.

The Tarentines, being now sensible that Pyrrhus was determined to be their master, began loudly to complain of his conduct; but he, being informed of whatever passed among them by his spies, who insinuated themselves into all companies, privately dispatched the most factious, and sent those whom he suspected, under various pretences, to his son's court in Epirus.

In the mean time, P. Valerius Lævinus, the Roman consul, entering the country of the Lucanians, who were in alliance with the Tarentines, committed great ravages there; and having taken and fortified one of their castles, waited in that neighbourhood for Pyrrhus. The king, though he had not yet received any succours from the Samnites, Messapians, and other allies of the Tarentines, thought it highly dishonourable to continue shut up in a city, while the Romans were ravaging the country of his friends. He therefore took the field with the troops he had brought with him from Epirus, some recruits of Tarentum, and a small number of Italians. But before he began hostilities, he wrote a letter to Lævinus, commanding him to disband his army; and on his refusal, immediately marched towards those parts where Lævinus was waiting for him. The Romans were encamped on the hither side of the river Siris; and Pyrrhus appearing on the opposite bank, made it his first business to reconnoitre the enemy's camp in person, and see what appearance they made. With this view he crossed the river, attended by Megacles, one of his officers and chief favourites; and having observed the consul's intrenchments, the manner in which he had posted his advanced guards, and the good order of his camp, he was greatly surprised; and addressing Megacles, "These people (said he) are not such barbarians as we take them to be: let us try them before we condemn them." On his return, he changed his resolution of attacking them; and, shutting himself up in his intrenchments, waited for the arrival of the confederate troops. In the mean time, he posted strong guards along the river, to prevent the enemy from passing it, and continually sent out scouts to discover the designs, and watch the motions of the consul. Some of these being taken by the advanced guards of the Romans, the consul himself led them through his camp, and having shewed them his army, sent them back to the king, telling them, that he had many other troops to show them in due time.

Lævinus being determined to draw the enemy to a battle before Pyrrhus received the reinforcements he expected, having harangued his troops, marched to the banks of the Siris; and there drawing up his infantry in battalia, ordered the cavalry to file off, and march a great way about, in order to find a passage at some place not defended by the enemy. Accordingly, they passed the river without being observed; and falling upon the guards which Pyrrhus had posted on the banks over-against the consular army, gave the infantry an opportunity of crossing the river on bridges which Lævinus had prepared for that purpose. But before they got over, Pyrrhus, hastening from his camp, which was at some distance from the river, hoped to cut the Roman army in pieces while they were disordered with the difficulties of passing the river, and climbing up the steep banks; but the cavalry covering the infantry, and standing between them and the Epirots, gave them time to form themselves on the banks of the river. On the other hand, Pyrrhus drew up his men as fast as they came from the camp, and performed such deeds of valour, that the Romans thought him worthy of the great reputation he had acquired.

As the cavalry alone had hitherto engaged, Pyrrhus, who confided most in his infantry, hastened back to the camp, in order to bring them to the charge; but took two precautions before he began the attack: the first was, to ride through the ranks, and show himself to the whole army; for his horse having been killed under him in the first onset, a report had been spread that he was slain: the second was, to change his habit and helmet with Megacles; for having been known in the engagement of the horse by the richness of his attire and armour, many of the Romans had aimed at him in particular, so that he was with the utmost difficulty taken and saved, after his horse had been killed under him. Thus disguised, he led his phalanx against the Roman legions, and attacked them with incredible fury. Lævinus sustained the shock with great resolution, so that the victory was for many hours warmly disputed. The Romans gave several times way to the Epirots, and the Epirots to the Romans; but both parties rallied again, and were brought back to the charge by their commanders. Megacles, in the attire and helmet of Pyrrhus, was in all places, and well supported the character he had assumed. But his disguise at last proved fatal to him: for a Roman knight, by name *Dexter*, taking him for the king, followed him wherever he went; and having found an opportunity of discharging a blow at him, struck him dead on the spot, stripped him of his helmet and armour, and carried them in triumph to the consul, who, by showing to the Epirots the spoils of their king, so terrified them, that they began to give ground. But Pyrrhus, appearing bare-headed in the first files of his phalanx, and riding through all the lines, undeceived his men, and inspired them with new courage.

The advantage seemed to be pretty equal on both sides, when Lævinus ordered his cavalry to advance; which Pyrrhus observing, drew up 20 elephants in the front of his army, with towers on their backs full of bowmen. The very sight of those dreadful animals chilled the bravery of the Romans, who had never before seen any. However, they still advanced, till their horses, not being able to bear the smell of them, and frightened

Rome.

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His first battle with the Romans.

ome. frightened at the strange noise they made, either threw their riders, or carried them on full speed in spite of their utmost efforts. In the mean time, the archers, discharging showers of darts from the towers, wounded several of the Romans in that confusion, while others were trod to death by the elephants. Notwithstanding the disorder of the cavalry, the legionaries still kept their ranks; and could not be broken, till Pyrrhus attacked them in person at the head of the Thessalian horse. The onset was so furious, that they were forced to yield, and retire in disorder. The king of Epirus restrained the ardour of his troops, and would not suffer them to pursue the enemy: an elephant, which had been wounded by a Roman soldier named *Minucius*, having caused a great disorder in his army, this accident favoured the retreat of the Romans, and gave them time to repass the river, and take refuge in Apulia. The Epirot remained master of the field, and had the pleasure to see the Romans fly before him: but the victory cost him dear, a great number of his best officers and soldiers having been slain in the battle; whence he was heard to say after the action, that he was both conqueror and conquered, and that if he gained such another victory, he should be obliged to return to Epirus alone.

His first care after the action was to bury the dead, with which the plain was covered; and herein he made no distinction between the Romans and his own Epirots. In viewing the bodies of the former, he observed, that none of them had received dishonourable wounds; that they had all fallen in the posts assigned them, still held their swords in their hands, and showed, even after death, a certain martial air and fierceness in their faces; and on this occasion it was that he uttered those famous words: "O that Pyrrhus had the Romans for his soldiers, or the Romans Pyrrhus for their leader! together, we should subdue the whole world."

259 The king of Epirus understood the art of war too well not to reap what advantage he could from his victory. He broke into the countries in alliance with the Romans, plundered the lands of the republic, and made incursions even into the neighbourhood of Rome. Many cities opened their gates to him, and in a short time he made himself master of the greatest part of Campania. While he was in that fruitful province, subsisting his troops there at the expence of the Romans, he was joined by the Samnites, Lucanians, and Messapians, whom he had so long expected. After having reproached them for their delay, he gave them a good share of the spoils he had taken from the enemy; and having by this means gained their affections, he marched without loss of time to lay siege to Capua: but Lævinus, having already received a reinforcement of two legions, threw some troops into the city; which obliged Pyrrhus to drop his design, and, leaving Capua, to march straight to Naples. Lævinus followed him, harassing his troops on their march; and at length, by keeping his army in the neighbourhood, forced him to give over all thoughts of making himself master of that important city. The king then, all on a sudden, took his route towards Rome by the Latin way, surprised Fregellæ, and, marching through the country of the Hernici, sat down before Præneste. There, from the top of an hill, he had the pleasure of seeing Rome; and

is said to have advanced so near the walls, that he drove a cloud of dust into the city. But he was soon forced to retire by the other consul T. Coruncanius, who, having reduced Hetruria, was just then returned with his victorious army to Rome. The king of Epirus, therefore, having no hopes of bringing the Hetrurians into his interest, and seeing two consular armies ready to fall upon him, raised the siege of Præneste, and hastened back into Campania; where, to his great surprise, he found Lævinus with a more numerous army than that which he had defeated on the banks of the Siris. The consul went to meet him, with a design to try the fate of another battle; which Pyrrhus being unwilling to decline, drew up his army, and, to strike terror into the Roman legions, ordered his men to beat their bucklers with their lances, and the leaders of the elephants to force them to make a hideous noise. But the noise was returned with such an universal shout by the Romans, that Pyrrhus, thinking so much alacrity on the part of the vanquished too sure a prognostic of victory, altered his mind; and, pretending that the auguries were not favourable, retired to Tarentum, and put an end to the campaign.

160 While Pyrrhus continued quiet at Tarentum, he He inclines to peace. had time to reflect on the valour and conduct of the Romans; which made him conclude, that the war in which he was engaged must end in his ruin and disgrace, if not terminated by an advantageous peace. He was therefore overjoyed when he heard that the senate had determined to send an honourable embassy to him, not doubting but their errand was to propose terms of peace. The ambassadors were three men of distinguished merit; to wit, Cornelius Dolabella, who was famous for the signal victory he had gained over the Senones, Fabricius, and Æmilius Pappus, who had been his colleague in the consulate two years before. When they were admitted to an audience, the only thing they demanded was a surrender of the prisoners, either by the way of exchange, or at such a ransom as should be agreed on; for Pyrrhus, in the late battle, had made 1800 prisoners, most of them Roman knights and men of distinction in the republic. They had fought with great bravery, till their horses, frightened with the roaring of the king's elephants, had either thrown them, or obliged them to dismount; by which unforeseen accident they had fallen into the enemy's hands. The senate, therefore, pitying the condition of those brave men, had determined, contrary to their custom, to redeem them. Pyrrhus was greatly surprised and disappointed when he found that they had no other proposals to make; but, concealing his thoughts, he only answered, that he would consider of it, and let them know his resolution. Accordingly, he assembled his council: but his chief favourites were divided in their opinions. Milo, who commanded in the citadel of Tarentum, was for coming to no composition with the Romans; but Cynæas, who knew his master's inclination, proposed not only sending back the prisoners without ransom, but dispatching an embassy to Rome to treat with the senate of a lasting peace. His advice was approved, and he himself appointed to go on that embassy. After these resolutions, the king acquainted the ambassadors, that he intended to release the prisoners without ransom, since he had already riches enough, and desired

Rome.

fired nothing of the republic but her friendship. Afterwards he had several conferences with Fabricius, whose virtue he had tried with mighty offers of riches and grandeur; but finding him proof against all temptations, he resolved to try whether his intrepidity and courage were equal to his virtue. With this view, he caused an elephant to be placed behind a curtain in the hall where he received the Roman ambassador. As Fabricius had never seen one of those beasts, the king, taking a turn or two in the hall with him, brought him within the elephant's reach, and then caused the curtain to be drawn all on a sudden, and that monstrous animal to make his usual noise, and even lay his trunk on Fabricius's head. But the intrepid Roman, without betraying the least fear or concern, "Does the great king (said he, with surprising calmness), who could not stagger me with his offers, think to frighten me with the braying of a beast?" Pyrrhus, astonished at his immovable constancy, invited him to dine with him; and on this occasion it was, that the conversation turning upon Epicurean philosophy, Fabricius made that celebrated exclamation, "O that Pyrrhus, both for Rome's sake and his own, had placed his happiness in the boasted indolence of Epicurus."

Every thing Pyrrhus heard or saw of the Romans increased his earnestness for peace. He sent for the three ambassadors, released 200 of the prisoners without ransom, and suffered the rest, on their parole, to return to Rome to celebrate the Saturnalia, or feasts of Saturn, in their own families. Having by this obliging behaviour gained the good-will of the Roman ambassadors, he sent Cyneas to Rome, almost at the same time that they left Tarentum. The instructions he gave this faithful minister, were, to bring the Romans to grant these three articles: 1. That the Tarentines should be included in the treaty made with the king of Epirus. 2. That the Greek cities in Italy should be suffered to enjoy their laws and liberties. 3. That the republic should restore to the Samnites, Lucanians, and Bruttians, all the places she had taken from them. Upon these conditions, Pyrrhus declared himself ready to forbear all further hostilities, and conclude a lasting peace. With these instructions Cyneas set out for Rome; where, partly by his eloquence, partly by rich presents to the senators and their wives, he soon gained a good number of voices. When he was admitted into the senate, he made an harangue worthy of a disciple of the great Demosthenes; after which, he read the conditions Pyrrhus proposed, and, with a great deal of eloquence, endeavouring to show the reasonableness and moderation of his master's demands, asked leave for Pyrrhus to come to Rome to conclude and sign the treaty. The senators were generally inclined to agree to Pyrrhus's terms; but nevertheless, as several senators were absent, the determination of the affair was postponed to the next day; when Appius Claudius, the greatest orator and most learned civilian in Rome, old and blind as he was, caused himself to be carried to the senate, where he had not appeared for many years; and there, partly by his eloquence, partly by his authority, so prepossessed the minds of the senators against the king of Epirus, and the conditions he offered, that, when he had done speaking, the conscript fathers unanimously passed a decree, the substance of which was, That the war with Pyrrhus

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The Romans refuse to treat.

should be continued; that his ambassador should be sent back that very day; that the king of Epirus should not be permitted to come to Rome; and that they should acquaint his ambassador, that Rome would enter into no treaty of peace with his master till he had left Italy.

Cyneas, surpris'd at the answer given him, left Rome the same day, and returned to Tarentum, to acquaint the king with the final resolution of the senate. Pyrrhus would have willingly concluded a peace with them upon honourable terms; but, as the conditions they offered were not by any means consistent with the reputation of his arms, he began, without loss of time, to make all due preparations for the next campaign. On the other hand, the Romans having raised to the consulate P. Sulpicius Saverrio, and P. Decius Mus, dispatched them both into Apulia, where they found Pyrrhus encamped near a little town called *Asculum*. There the consuls, joining their armies, fortified themselves at the foot of the Apennines, having between them and the enemy a large deep stream which divided the plain. Both armies continued a great while on the opposite banks, before either ventured to pass over to attack the other. The Epirots allowed the Romans to cross the stream, and draw up on the plain. On the other hand, Pyrrhus placed his men likewise in order of battle in the same plain; and all the ancients do him the justice to say, that no commander ever understood better the art of drawing up an army and directing its motions. In the right wing he placed his Epirots and the Samnites; in his left the Lucanians, Bruttians and Salentines; and his phalanx in the centre. The centre of the Roman army consisted of four legions, which were to engage the enemy's phalanx; on their wings were posted the light-armed auxiliaries and the Roman horse. The consuls, in order to guard their troops against the fury of the elephants had prepared chariots, armed with long points of iron in the shape of forks, and filled with soldiers carrying firebrands, which they were directed to throw at the elephants, and by that means frighten them, and set their wooden towers on fire. These chariots were posted over-against the king's elephants, and ordered not to stir till they entered upon action. To this precaution the Roman generals added another, which was, to direct a body of Apulians to attack Pyrrhus's camp in the heat of the engagement, in order to force it, or at least to draw off part of the enemy's troops to defend it. At length the attack began, both parties being pretty equal in number; for each of them consisted of about 40,000 men. The phalanx sustained, for a long time, the furious onset of the legions with incredible bravery: but at length being forced to give way, Pyrrhus commanded his elephants to advance, but not on the side where the Romans had posted their chariots; they marched round, and, falling upon the Roman horse, soon put them into confusion. Then the phalanx, returning with fresh courage to the charge, made the Roman legions in their turn give ground. On this occasion Decius was killed, so that one consul only was left to command the two Roman armies. But while all things seemed to favour Pyrrhus, the body of Apulians which we have mentioned above, falling unexpectedly on the camp of the Epirots, obliged the king to dispatch a strong detachment to defend his intrenchments.

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Another battle.

Rome.

163
Pyrrhus
wounded,
and dan-
gerously
wounded.

Upon the departure of these troops, some of the Epirots, imagining that the camp was taken, began to lose courage, and retire; those who were next to them followed their example, and in a short time the whole army gave way. Pyrrhus having attempted several times in vain to rally his forces, returned to the charge with a small number of his friends and the most courageous of his officers. With these he sustained the fury of the victorious legions, and covered the retreat of his own men. But being, after a most gallant behaviour, dangerously wounded, he retired at last with his small band in good order, leaving the Romans masters of the field. As the sun was near setting, the Romans, being extremely fatigued, and a great number of them wounded, the consul Sulpicius, not thinking it advisable to pursue the enemy, founded a retreat, repassed the stream, and brought his troops back to the camp. Sulpicius appeared in the field of battle the next day, with a design to bring the Epirots to a second engagement; but finding they had withdrawn in the night to Tarentum, he likewise retired, and put his troops into winter-quarters in Apulia.

164
The king's
physician
orders to
poison him,
it is dis-
covered by
the Ro-
mans.

Both armies continued quiet in their quarters during winter; but early in the spring took the field anew.—The Romans were commanded this year by two men of great fame, whom they had raised to the consulate the second time: these were the celebrated C. Fabricius and Q. Æmilius Pappus; who no sooner arrived in Apulia, than they led their troops into the territory of Tarentum. Pyrrhus, who had received considerable reinforcements from Epirus, met them near the frontiers, and encamped at a small distance from the Roman army. While the consuls were waiting here for a favourable opportunity to give battle, a messenger from Nicias, the king's physician, delivered a letter to Fabricius; wherein the traitor offered to take off his master by poison, provided the consul would promise him a reward proportionable to the greatness of the service. The virtuous Roman, being filled with horror at the bare proposal of such a crime, immediately communicated the affair to his colleague; who readily joined with him in writing a letter to Pyrrhus, wherein they warned him, without discovering the criminal, to take care of himself, and be upon his guard against the treacherous designs of those about him. Pyrrhus, out of a deep sense of gratitude for so great a benefit, released immediately, without ransom, all the prisoners he had taken. But the Romans, disdaining to accept either a favour from an enemy, or a recompense for not committing the blackest treachery, declared, that they would not receive their prisoners but by way of exchange; and accordingly sent to Pyrrhus an equal number of Samnite and Tarentine prisoners.

As the king of Epirus grew every day more weary of a war which he feared would end in his disgrace, he sent Cynæas a second time to Rome, to try whether he could, with his artful harangues, prevail upon the conscript fathers to hearken to an accommodation, upon such terms as were consistent with his honour. But the ambassador found the senators steady in their former resolution, and determined not to enter into a treaty with his master till he had left Italy, and withdrawn from thence all his forces. This gave the king great uneasiness; for he had already lost most of his veteran troops and best officers, and was sensible that he should

lose the rest if he ventured another engagement. While he was revolving these melancholy thoughts in his mind, ambassadors arrived at his camp from the Syracusians, Agrigentines, and Leontines, imploring the assistance of his arms to drive out the Carthaginians, and put an end to the troubles which threatened their respective states with utter destruction. Pyrrhus, who wanted only some honourable pretence to leave Italy, laid hold of this; and appointing Milo governor of Tarentum, with a strong garrison to keep the inhabitants in awe during his absence, he set sail for Sicily with 30,000 foot and 2500 horse, on board a fleet of 200 ships. Here he was at first attended with great success; but the Sicilians, disgusted at the resolution he had taken of passing over into Africa, and much more at the enormous exactions and extortions of his ministers and courtiers, had submitted partly to the Carthaginians and partly to the Mamertines. When Carthage heard of this change, new troops were raised all over Africa, and a numerous army sent into Sicily to recover the cities which Pyrrhus had taken. As the Sicilians daily deserted from him in crowds, he was no way in a condition, with his Epirots alone, to withstand so powerful an enemy; and therefore, when deputies came to him from the Tarentines, Samnites, Bruttians, and Lucanians, representing to him the losses they had sustained since his departure, and remonstrating, that, without his assistance, they must fall a sacrifice to the Romans, he laid hold of that opportunity to abandon the island, and return to Italy. His fleet was attacked by that of Carthage; and his army, after their landing, by the Mamertines. But Pyrrhus having, by his heroic bravery, escaped all danger, marched along the sea-shore, in order to reach Tarentum that way. As he passed through the country of the Locrians, who had not long before massacred the troops he had left there, he not only exercised all sorts of cruelty on the inhabitants, but plundered the temple of Proserpine to supply the wants of his army. The immense riches which he found there, were, by his order, sent to Tarentum by sea; but the ships that carried them being dashed against the rocks by a tempest, and the mariners all lost, this proud prince was convinced, says Livy, that the gods were not imaginary beings, and caused all the treasure, which the sea had thrown upon the shore, to be carefully gathered up, and replaced in the temple: nay, to appease the wrath of the angry goddess, he put all those to death who had advised him to plunder her temple. However, superstition made the ancients ascribe to this act of impiety all the misfortunes which afterwards befel that unhappy prince.

Pyrrhus at length arrived at Tarentum; but of the army he had carried into Sicily, he brought back into Italy only 2000 horse and not quite 20,000 foot. He therefore reinforced them with the best troops he could raise in the countries of the Samnites, Lucanians, and Bruttians; and hearing that the two new consuls, Curius Dentatus and Cornelius Lentulus, had divided their forces, the one invading Lucania and the other Samnium, he likewise divided his army into two bodies, marching with the choice of his Epirots against Dentatus, in hopes of surprising him in his camp near Beneventum. But the consul having notice of his approach, went out of his intrenchments with a strong detachment of legionaries to meet him; repulsed his

van-

Rome.

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Pyrrhus
goes into
Sicily.166
He returns
into Italy.

Rome.

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Is utterly
defeated by
Curus Den-
tarius.

van-guard, put many of the Epirots to the sword, and took some of their elephants. Curius encouraged with this success, marched his army into the Taurasian fields, and drew it up in a plain which was wide enough for his troops, but too narrow for the Epirot phalanx, the phalangites being so crowded that they could not handle their arms without difficulty. But the king's eagerness to try his strength and skill with so renowned a commander, made him engage at that great disadvantage. Upon the first signal the action began; and one of the king's wings giving way, the victory seemed to incline to the Romans. But that wing where the king fought in person repulsed the enemy, and drove them back quite to their intrenchments. This advantage was in great part owing to the elephants; which Curius perceiving, commanded a corps de reserve, which he had posted near the camp, to advance and fall upon the elephants. These carrying burning torches in one hand, and their swords in the other, threw the former at the elephants, and with the latter defended themselves against their guides; by which means they were both forced to give way. The elephants being put to flight broke into the phalanx, close as it was, and there caused a general disorder; which was increased by a remarkable accident: for it is said, that a young elephant being wounded, and thereupon making a dreadful noise, the mother quitting her rank, and hastening to the assistance of her young one, put those who still kept their ranks into the utmost confusion. But, however that be, it is certain that the Romans obtained at last a complete victory. Orosius and Eutropius tell us that Pyrrhus's army consisted of 80,000 foot and 6000 horse, including his Epirots and allies; whereas the consular army was scarce 20,000 strong. Those who exaggerate the king's loss say, that the number of the slain on his side amounted to 30,000 men; but others reduce it to 20,000. All writers agree, that Curius took 1200 prisoners and eight elephants. This victory, which was the most decisive Rome had ever gained, brought all Italy under subjection, and paved the way for those vast conquests which afterwards made the Romans masters of the whole known world.

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He abandons his
allies,

Pyrrhus being no way in a condition, after the great loss he had sustained, to keep the field, retired to Tarentum, attended only by a small body of horse, leaving the Romans in full possession of his camp; which they so much admired, that they made it ever after a model to form theirs by. And now the king of Epirus resolved to leave Italy as soon as possible; but concealed his design, and endeavoured to keep up the drooping spirits of his allies, by giving them hopes of speedy succours from Greece. Accordingly he dispatched ambassadors into Ætolia, Illyricum, and Macedonia, demanding supplies of men and money. But the answers from those courts not proving favourable, he forged such as might please those whom he was willing to deceive; and by this means supported the courage of his friends, and kept his enemy in play. When he could conceal his departure no longer, he pretended to be on a sudden in a great passion at the dilatoriness of his friends in sending him succours; and acquainted the Tarentines, that he must go and bring them over himself. However, he left behind him a strong garrison in the citadel of Tarentum, under the command of the same Milo who had kept it for him during his stay

in Sicily. In order to keep this governor in his duty, he is said to have made him a very strange present, viz. a chair covered with the skin of Nicias, the treacherous physician, who had offered Fabricius to poison his master. After all these disguises and precautions, Pyrrhus at last set sail for Epirus, and arrived safe at Acroceraunium with 8000 foot and 500 horse; after having spent to no purpose six years in Italy and Sicily.

Though, from the manner in which Pyrrhus took his leave, his Italian allies had little reason to expect any further assistance from him, yet they continued to amuse themselves with vain hopes, till certain accounts arrived of his being killed at the siege of Argos, as has been related under the article EPIRUS. This threw the Samnites into despair: so that they put all to the issue of a general battle; in which they were defeated with such dreadful slaughter, that the nation is said to have been almost exterminated. This overthrow was soon followed by the submission of the Lucanians, Brutians, Tarentines, Sarcinates, Picentes, and Salentines; so that Rome now became mistress of all the nations from the remotest parts of Hetruria to the Ionian sea, and from the Tyrrhenian sea to the Adriatic. All these nations, however, did not enjoy the same privileges. Some were entirely subject to the republic, and had no laws but what they received from thence; others retained their old laws and customs, but in subjection to the republic: some were tributary; and others allies, who were obliged to furnish troops at their own expence when the Romans required. Some had the privilege of Roman citizenship, their soldiers being incorporated in the legions; while others had a right of suffrage in the elections made by the centuries. These different degrees of honour, privileges, and liberty, were founded on the different terms granted to the conquered nations when they surrendered, and were afterwards increased according to their fidelity and the services they did the republic.

The Romans now became respected by foreign nations, and received ambassadors from Ptolemy Philadelphus king of Egypt, and from Apollonia a city of Macedonia. Sensible of their own importance, they now granted protection to whatever nation requested it of them; but this not with a view of serving one party, but that they might have an opportunity of subduing both. In this manner they assisted the Mamertines against Hiero king of Syracuse, which brought on the wars with the Carthaginians, which terminated in the total destruction of that ancient republic, as has been related under the article CARTHAGE. The interval between the first and second Punic wars was by the Romans employed in reducing the Boii and Ligurians, who had revolted. These were Gaulish nations, who had always been very formidable to the Romans, and now gave one of their consuls a notable defeat. However, he soon after sufficiently revenged himself, and defeated the enemy with great slaughter; though it was not till some time after, and with a good deal of difficulty, that they were totally subdued. During this interval also, the Romans seized on the islands of Sardinia, Corsica, and Malta; and in the year 219 B. C. the two former were reduced to the form of a province. Papirius, who had subdued Corsica, demanded a triumph; but not having interest enough to obtain it, he took a method entirely new to do himself justice. He put

Rome.

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Who are
subdued
and the
Romans be-
come mas-
ters of
Italy.

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Other
quests
by the
Romans.

himself at the head of his victorious army, and marched to the temple of Jupiter Latiaris, on the hill of Alba, with all the pomp that attended triumphant victors at Rome. He made no other alteration in the ceremony, but that of wearing a crown of myrtle instead of a crown of laurel, and this on account of his having defeated the Corsicans in a place where there was a grove of myrtles. The example of Papirius was afterwards followed by a great many generals to whom the senate refused triumphs.

The next year, when M. Æmilius Barbula and M. Junius Pera were consuls, a new war sprung up in a kingdom out of Italy. *Illyricum*, properly so called, which bordered upon Macedon and Epirus, was at this time governed by a woman named *Teuta*, the widow of king Agron, and guardian to her son Pinæus, who was under age. The success of her late husband against the Ætolians had flushed her to such a degree, that, instead of settling the affairs of her ward in peace, she commanded her subjects to cruise along the coast, seize all the ships they met, take what places they could, and spare no nation. Her pirates had, pursuant to her orders, taken and plundered many ships belonging to the Roman merchants; and her troops were then besieging the island of Issa in the Adriatic, though the inhabitants had put themselves under the protection of the republic. Upon the complaints therefore of the Italian merchants, and to protect the people of Issa, the senate sent two ambassadors to the Illyrian queen, Lucius and Caius Coruncanius, to demand of her that she would restrain her subjects from infesting the sea with pirates. She answered them haughtily, that she could only promise that her subjects should not for the future attack the Romans in her name, and by public authority: "but as for any thing more, it is not customary with us (said she) to lay restraints on our subjects, nor will we forbid them to reap those advantages from the sea which it offers them." Your customs then (replied the youngest of the ambassadors) are very different from ours. At Rome we make public examples of those subjects who injure others, whether at home or abroad. Teuta, we can, by our arms, force you to reform the abuses of your bad government." These unseasonable threatenings provoked Teuta, who was naturally a proud and imperious woman, to such a degree, that, without regard to the right of nations, she caused the ambassadors to be murdered on their return home.

When so notorious an infraction of the law of nations was known at Rome, the people demanded vengeance; and the senate having first honoured the manes of the ambassadors, by erecting, as was usual in such cases, statues three feet high to their memory, ordered a fleet to be equipped, and troops raised, with all possible expedition. But now Teuta, reflecting on the enormity of her proceedings, sent an embassy to Rome, assuring the senate that she had no hand in the murder of the ambassadors, and offering to deliver up to the republic those who had committed that barbarous assassination. The Romans being at that time threatened with a war from the Gauls, were ready to accept this satisfaction: but in the mean time the Illyrian fleet having gained some advantage over that of the Achæans, and taken the island of Corcyra near Epirus, this success made Teuta believe herself invincible, and forget the promise she had made to the Romans; nay, she

sent her fleet to seize on the island of Issa, which the Romans had taken under their protection. Rome.

Hereupon the consuls for the new year, P. Posthumius Albinus and Cn. Fulvius Centumalus, embarked for Illyricum; Fulvius having the command of the fleet, which consisted of 100 galleys; and Posthumius of the land forces, which amounted to 20,000 foot, besides a small body of horse. Fulvius appeared with his fleet before Corcyra in the Adriatic, and was put in possession both of the island and city by Demetrius of Pharos, governor of the place for Queen Teuta. Nor was this all; Demetrius found means to make the inhabitants of Apollonia drive out the Illyrian garrison, and admit into their city the Roman troops. As Apollonia was one of the keys of Illyricum on the side of Macedon, the consuls, who had hitherto acted jointly, no sooner saw themselves in possession of it than they separated, the fleet cruising along the coast, and the army penetrating into the heart of the queen's dominions. The Andyceans, Parthini, and Atintanes, voluntarily submitted to Posthumius, being induced by the persuasions of Demetrius to shake off the Illyrian yoke. The consul being now in possession of most of the inland towns, returned to the coast, where, with the assistance of the fleet, he took many strong-holds, among which was Nutria, a place of great strength, and defended by a numerous garrison; so that it made a vigorous defence, the Romans having lost before it a great many private men, several legionary tribunes, and one quæstor. However, this loss was repaired by the taking of 40 Illyrian vessels, which were returning home laden with booty. At length the Roman fleet appeared before Issa, which, by Teuta's order, was still closely besieged, notwithstanding the losses she had sustained. However, upon the approach of the Roman fleet, the Illyrians dispersed; but the Pharians, who served among them, followed the example of their countryman Demetrius, and joined the Romans, to whom the Issani readily submitted.

In the mean time Sp. Corvilius and Q. Fabius Maximus being raised to the consulate a second time, Posthumius was recalled from Illyricum, and refused a triumph for having been too prodigal of the Roman blood at the siege of Nutria. His colleague Fulvius was appointed to command the land forces in his room, in quality of proconsul. Hereupon Teuta, who had founded great hopes on the change of the consuls, retired to one of her strong-holds called *Rhizon*, and from thence early in the spring sent an embassy to Rome. The senate refused to treat with her; but granted the young king a peace upon the following conditions: 1. That he should pay an annual tribute to the republic. 2. That he should surrender part of his dominions to the Romans. 3. That he should never suffer above three of his ships of war at a time to sail beyond Lyffus, a town on the confines of Macedon and Illyricum. The places he yielded to the Romans in virtue of this treaty, were the islands of Corcyra, Issa, and Pharos, the city of Dyrrhachium, and the country of the Atintanes. Soon after Teuta, either out of shame, or compelled by a secret article of the treaty, abdicated the regency, and Demetrius succeeded her.

Before this war was ended, the Romans were alarmed by new motions of the Gauls, and the great progress which the Carthaginians made in Spain. At this time

Rome. also the fears of the people were excited by a prophecy said to be taken out of the Sybilline books, that the Gauls and Greeks should one day be in possession of Rome. This prophecy, however, the senate found means to elude, as they pretended, by burying two Gauls and two Greeks alive, and then telling the multitude that the Gauls and Greeks were now in the possession of Rome. The difficulties which superstition had raised being thus surmounted, the Romans made vast preparations against the Gauls, whom they seem to have dreaded above all other nations. Some say that the number of forces raised by the Romans on this occasion amounted to no fewer than 800,000 men. Of this incredible multitude 248,000 foot and 26,000 horse were Romans or Campanians; nevertheless, the Gauls, with only 50,000 foot and 20,000 horse, forced a passage through Etruria, and took the road towards Rome. Here they had the good fortune at first to defeat one of the Roman armies; but being soon after met by two others, they were utterly defeated, with the loss of more than 50,000 of their number. The Romans then entered their country, which they cruelly ravaged; but a plague breaking out in their army, obliged them to return home. This was followed by a new war, in which those Gauls who inhabited Insubria and Liguria were totally subdued, and their country reduced to a Roman province. These conquests were followed by that of Istria; Dimalum, a city of importance in Illyricum; and Pharos, an island in the Adriatic sea.

The second Punic war for some time retarded the conquests of the Romans, and even threatened their state with entire destruction; but Hannibal being at last recalled from Italy, and entirely defeated at Zama, they made peace upon such advantageous terms as gave them an entire superiority over that republic, which they not long after entirely subverted, as has been related in the history of CARTHAGE.

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The Roman empire
arrives at
its full
extent.

The successful issue of the second Punic war had greatly increased the extent of the Roman empire. They were now masters of all Sicily, the Mediterranean islands, and great part of Spain; and, through the dissensions of the Asiatic states with the king of Macedon, a pretence was now found for carrying their arms into these parts. The Gauls in the mean time, however, continued their incursions, but now ceased to be formidable; while the kings of Macedon, through misconduct, were first obliged to submit to a disadvantageous peace, and at last totally subdued (see MACEDON). The reduction of Macedon was soon followed by that of all Greece, either by the name of allies or otherwise: while Antiochus the Great, to whom Hannibal fled for protection, by an unsuccessful war first gave the Romans a footing in Asia (see SYRIA). The Spaniards and Gauls continued to be the most obstinate enemies. The former, particularly, were rather exterminated than reduced; and even this required the utmost care and vigilance of Scipio Æmilianus, the conqueror of Carthage, to execute. See SPAIN and NUMANTIA.

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Sedition of
the Gracchi.

Thus the Romans attained to a height of power superior to any other nation in the world; but now a sedition broke out, which we may say was never terminated but with the overthrow of the republic. This had its origin from Tiberius Sempronius Gracchus, descended from a family which, though plebeian, was as illu-

strious as any in the commonwealth. His father had been twice raised to the consulate, was a great general, and had been honoured with two triumphs. But he was still more renowned for his domestic virtues and probity, than for his birth or valour. He married the daughter of the first Africanus, said to be the pattern of her sex, and the prodigy of her age; and had by her several children, of whom three only arrived to maturity of age, Tiberius Gracchus, Caius Gracchus, and a daughter named *Sempronia*, who was married to the second Africanus. Tiberius, the eldest, was deemed the most accomplished youth in Rome, with respect to the qualities both of body and mind. His extraordinary talents were heightened by a noble air, an engaging countenance, and all those winning graces of nature which recommend merit. He made his first campaigns under his brother-in-law, and distinguished himself on all occasions by his courage, and by the prudence of his conduct. When he returned to Rome, he applied himself to the study of eloquence; and at 30 years old was accounted the best orator of his age. He married the daughter of Appius Claudius, who had been formerly consul and censor, and was then prince of the senate. He continued for some time in the sentiments both of his own and his wife's family, and supported the interests of the patricians; but without openly attacking the popular faction. He was the chief author and negociator of that shameful necessary peace with the Numantines; which the senate, with the utmost injustice, disannulled, and condemned the consul, the quaestor, and all the officers who had signed it, to be delivered up to the Numantines (see NUMANTIA). The people indeed, out of esteem for Gracchus, would not suffer him to be sacrificed: but, however, he had just reason to complain, both of the senate and people, for passing so scandalous a decree against his general and himself, and breaking a treaty whereby the lives of so many citizens had been saved. But as the senate had chiefly promoted such base and iniquitous proceedings, he resolved in due time to show his resentment against the party which had contributed most to his disgrace.

In order to this, he stood for the tribuneship of the people; which he no sooner obtained, than he resolved to attack the nobility in the most tender part. They had usurped lands unjustly; cultivated them by slaves, to the great detriment of the public; and had lived for about 250 years in open defiance to the Licinian law, by which it was enacted that no citizen should possess more than 500 acres. This law Tib. Gracchus resolved to revive, and by that means revenge himself on the patricians. But it was not revenge alone which prompted him to embark in so dangerous an attempt. It is pretended, that his mother Cornelia animated him to undertake something worthy both of his and her family. The reproaches of his mother, the authority of some great men, namely of his father-in-law Appius Claudius, of P. Crassus the *pontifex maximus*, and of Mutius Scævola, the most learned civilian in Rome, and his natural thirst after glory, joined with an eager desire of revenge, conspired to draw him into this most unfortunate scheme.

The law, as he first drew it up, was very mild: for A new
it only enacted, that those who possessed more than 500 propo
acres of land should part with the overplus; and that the
the

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for A new
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Gracch

Rome.

the full value of the said lands should be paid them out of the public treasury. The lands thus purchased by the public were to be divided among the poor citizens; and cultivated either by themselves or by freemen, who were upon the spot. Tiberius allowed every child of a family to hold 250 acres in his own name, over and above what was allowed to the father. Nothing could be more mild than this new law; since by the Licinian he might have absolutely deprived the rich of the lands they unjustly possessed, and made them accountable for the profits they had received from them during their long possession. But the rich patricians could not so much as bear the name of the *Licinian law*, though thus qualified. Those chiefly of the senatorial and equestrian order exclaimed against it, and were continually mounting the rostra one after another, in order to dissuade the people from accepting a law which, they said, would raise disturbances, that might prove more dangerous than the evils which Tiberius pretended to redress by the promulgation of it. Thus the zealous tribune was obliged day after day to enter the lists with fresh adversaries; but he ever got the better of them both in point of eloquence and argument.

The people were charmed to hear him maintain the cause of the unfortunate with so much success, and bestowed on him the highest commendations. The rich therefore had recourse to violence and calumny, in order to destroy, or at least to discredit, the tribune. It is said they hired assassins to dispatch him; but they could not put their wicked design in execution, Gracchus being always attended to and from the rostra by a guard of about 4000 men. His adversaries therefore endeavoured to ruin his reputation by the blackest calumnies. They gave out that he aimed at monarchy; and published pretended plots laid for crowning him king. But the people, without giving ear to such groundless reports, made it their whole business to encourage their tribune, who was hazarding both his life and reputation for their sakes.

When the day came on which this law was to be accepted or rejected by the people assembled in the comitium, Gracchus began with haranguing the mighty crowd which an affair of such importance had brought together both from the city and country. In his speech he showed the justice of the law with so much eloquence, made so moving a description of the miseries of the meaner sort of people, and at the same time set forth in such odious colours the usurpation of the public lands, and the immense riches which the avarice and rapaciousness of the great had raked together, that the people, transported with fury, demanded with loud cries the billets, that they might give their suffrages. Then Gracchus, finding the minds of the citizens in that warmth and emotion which was necessary for the success of his design, ordered the law to be read.

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posed by
tribune
Tiberius.

But unluckily one of the tribunes, by name *Marcus Octavius Cinna*, who had always professed a great friendship for Gracchus, having been gained over by the patricians, declared against the proceedings of his friend and colleague; and pronounced the word which had been always awful in the mouth of a tribune of the people, *Veto*, "I forbid it." As Octavius was a man of an unblameable character, and had hitherto been very zealous for the publication of the law, Gracchus

was greatly surprised at this unexpected opposition from his friend. However, he kept his temper, and only desired the people to assemble again the next day to hear their two tribunes, one in defence of, the other in opposition to, the law proposed. The people met at the time appointed; when Gracchus addressing himself to his colleague, conjured him by the mutual duties of their function, and by the bonds of their ancient friendship, not to oppose the good of the people, whom they were bound in honour to protect against the usurpation of the great: nay, taking his colleague aside, he addressed him thus, "Perhaps you are personally concerned to oppose this law; if so, I mean, if you have more than the five hundred acres, I myself, poor as I am, engage to pay you in money what you will lose in land." But Octavius, either out of shame, or from a principle of honour, continued immovable in the party he had embraced.

Gracchus therefore had recourse to another expedient; which was to suspend all the magistrates in Rome from the execution of their offices. It was lawful for any tribune to take this step, when the passing of the law which he proposed was prevented by mere chicanery. After this, he assembled the people anew, and made a second attempt to succeed in his design. When all things were got ready for collecting the suffrages, the rich privately conveyed away the urns in which the tablets were kept. This kindled the tribune's indignation, and the rage of the people. The comitium was like to become a field of battle, when two venerable senators, Manlius and Fulvius, very seasonably interposed; and throwing themselves at the tribune's feet, prevailed upon him to submit his law to the judgment of the conscript fathers. This was making the senators judges in their own cause: but Gracchus thought the law so undeniably just, that he could not persuade himself that they would reject it; and if they did, he knew that the incensed multitude would no longer keep any measures with them.

The senate, who wanted nothing but to gain time, affected delays, and came to no resolution. There were indeed some among them, who, out of a principle of equity, were for paying some regard to the complaints of the tribune, and for sacrificing their own interest to the relief of the distressed. But the far greater part would not hear of any composition whatsoever. Hereupon Gracchus brought the affair anew before the people, and earnestly intreated his colleague Octavius to drop his opposition, in compassion to the many unfortunate people for whom he interceded. He put him in mind of their ancient friendship, took him by the hand, and affectionately embraced him. But still Octavius was inflexible. Hereupon Gracchus resolved to deprive Octavius of his tribuneship, since he alone obstinately withstood the desires of the whole body of so great a people. Having therefore assembled the people, he told them, that since his colleague and he were divided in opinion, and the republic suffered by their division, it was the province of the tribes assembled in comitia to re-establish concord among their tribunes. "If the cause I maintain (said he) be, in your opinion, unjust, I am ready to give up my seat in the college. On the contrary, if you judge me worthy of being continued in your service in this station, deprive him of the tribuneship who alone obstructs my wishes. As soon as you shall have

Rome.

Rome nominated one to succeed him, the law will pass without opposition." Having thus spoken, he dismissed the assembly, after having summoned them to meet again the next day.

And now Gracchus, being foured with the opposition he had met with from the rich, and from his obstinate colleague, and being well apprised that the law would pass in any form in which he should think fit to propose it, resolved to revive it as it was at first passed, without abating any thing of its severity. There was no exception in favour of the children in families; or reimbursement promised to those who should part with the lands they possessed above 500 acres. The next day the people being assembled in vast crowds on this extraordinary occasion, Gracchus made fresh applications to Octavius, but to no purpose; he obstinately persisted in his opposition. Then Gracchus turning to the people, "Judge you, (said he), which of us deserves to be deprived of his office." At these words the first tribe voted, and declared for the deposition of Octavius. Upon which Gracchus, suspending the ardour of the tribes, made another effort to bring over his opponent by gentle methods. But all his endeavours proving ineffectual, the other tribes went on to vote in their turns, and followed the example of the first. Of 35 tribes, 17 had already declared against Octavius, and the 18th was just going to determine the affair, when Gracchus, being willing to try once more whether he could reclaim his colleague, suspended the collecting of the suffrages; and addressing Octavius in the most pressing terms, conjured him not to expose himself, by his obstinacy, to so great a disgrace, nor to give him the grief of having cast a blemish upon his colleague and friend, which neither time nor merit would ever wipe off. Octavius, however, continuing obstinate, was deposed, and the law passed as Gracchus had proposed it the last time. The deposed tribune was dragged from the rostra by the incensed multitude, who would have insulted him further, had not the senators and his friends facilitated his escape.

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Who is de-
posed, and
the law
passed.

The Licinian law being thus revived with one consent both by the city and country tribes, Gracchus caused the people to appoint triumvirs, or three commissioners, to hasten its execution. In this commission the people gave Gracchus the first place; and he had interest enough to get his father-in-law Appius Claudius, and his brother Caius Gracchus, appointed his colleagues. These three spent the whole summer in travelling through all the Italian provinces, to examine what lands were held by any person above 500 acres, in order to divide them among the poor citizens. When Gracchus returned from his progress, he found, by the death of his chief agent, that his absence had not abated either the hatred of the rich, or the love of the poor, toward him. As it plainly appeared that the deceased had been poisoned, the tribune took this occasion to apply himself again to his protectors, and implore their assistance against the violence and treachery of his enemies. The populace, more attached after this accident to their hero than ever, declared they would stand by him to the last drop of their blood; and this their zeal encouraged him to add a new clause to the law, viz. that the commissioners should likewise inquire what lands had been usurped from the republic. This was touching the senators in a most tender point; for most

of them had appropriated to themselves lands belonging to the republic. But after all, the tribune, upon a strict inquiry, found that the lands taken from the rich would not be enough to content all the poor citizens. But the following accident eased him of this difficulty, and enabled him to stop the murmurs of the malcontents among the people.

Attalus Philometer, king of Pergamus, having be-
queathed his dominions and effects to the Romans, Eu-
demus the Pergamean brought his treasures to Rome
at this time; and Gracchus immediately got a new law
passed, enacting, that this money should be divided
among the poor citizens who could not have lands;
and that the disposal of the revenues of Pergamus
should not be in the senate, but in the comitia. By
these steps Gracchus most effectually humbled the se-
nate; who, in order to discredit him among the people,
gave out that Eudemus, who had brought the king's
will to Rome, had left with Gracchus the royal diadem
and mantle of Attalus, which the law-making tribune
was to use when he should be proclaimed king of Rome.
But these reports only served to make Gracchus be
more upon his guard, and to inspire the people with
an implacable hatred against the rich who were the
authors of them. Gracchus being now, by his power
over the minds of the multitude, absolute master of their
suffrages, formed a design of raising his father-in-law
Appius Claudius to the consulate next year, of promo-
ting his brother Caius to the tribuneship, and getting
himself continued in the same office. The last was
what most nearly concerned him; his person, as long
as he was in office, being sacred and inviolable. As
the senate was very active in endeavouring to get such
only elected into the college of tribunes as were enemies
to Gracchus and his faction, the tribune left no stone-
unturned to secure his election. He told the people,
that the rich had resolved to assassinate him as soon as
he was out of his office; he appeared in mourning, as
was the custom in the greatest calamities; and bringing
his children, yet young, into the forum, recommended
them to the people in such terms, as showed that he
despaired of his own preservation. At this sight the
populace returned no answer, but by outcries and me-
naces against the rich.

When the day appointed for the election of new
tribunes came, the people were ordered to assemble in
the capitol in the great court before the temple of Ju-
piter. The tribes being met, Gracchus produced his
petition, intreating the people to continue him one year
longer in the office of tribune, in consideration of the
great danger to which he was exposed, the rich having
vowed his destruction as soon as his person should be no
more sacred. This was indeed an unusual request, it
having been long customary not to continue any tribune
in his office above a year. However, the tribes began
to vote, and the two first declared for Gracchus. Here-
upon the rich made great clamours; which terrified
Rubrius Varro, who presided in the college of tribunes
that day, to such a degree, that he resigned his place to
Q. Mummius, who offered to preside in his room. But
this raised a tumult among the tribunes themselves; so
that Gracchus wisely dismissed the assembly, and order-
ed them to meet again the next day.

In the mean time the people, being sensible of what
importance it was to them to preserve the life of so
powerful

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The trea-
sures of A-
talus di-
vided a-
mong the
people by
Gracchus

powerful a protector, not only conducted him home, but watched by turns all night at his door. Next morning by break of day, Gracchus having assembled his friends, led them from his house, and posted one half of them in the comitium, while he went up himself with the other to the capitol. As soon as he appeared, the people saluted him with loud acclamations of joy. But scarce was he placed in his tribunal, when Fulvius Flaccus a senator, and friend to Gracchus, breaking through the crowd, came up to him, and gave him notice, that the senators, who were assembled in the temple of Faith, which almost touched that of Jupiter Capitolinus, had conspired against his life, and were resolved to attack him openly on his very tribunal. Hereupon Gracchus tucked up his robe, as it were, to prepare for a battle; and, after his example, some of his party, seizing the slaves of the apparitors, prepared to defend themselves, and to repel force by force. These preparations terrified the other tribunes; who immediately abandoned their places in a cowardly manner, and mixed with the crowd; while the priests ran to shut the gates of the temple, for fear of its being profaned. On the other hand, the friends of Gracchus, who were dispersed by parties in different places, cried out, *We are ready: What must we do?* Gracchus, whose voice could not be heard by all his adherents on account of the tumult, the clamours, and the confused cries of the different parties, put his hand to his head; which was the signal agreed on to prepare for battle. But some of his enemies, putting a malicious construction upon that gesture, immediately flew to the senate, and told the fathers, that the seditious tribune had called for the crown to be put upon his head. Hereupon the senators, fancying they already saw the king of Pergamus's diadem on the tribune's head, and the royal mantle on his shoulders, resolved to give the consul leave to arm his legions, treat the friends of Gracchus as enemies, and turn the comitium into a field of battle.

But the consul Mutius Scævola, who was a prudent and moderate man, refused to be the instrument of their rash revenge, and to dishonour his consulate with the massacre of a disarmed people. As Calpurnius Piso, the other consul, was then in Sicily, the most turbulent among the senators cried out, "Since one of our consuls is absent, and the other betrays the republic, let us do ourselves justice; let us immediately go and demolish with our own hands this idol of the people." Scipio Nasica, who had been all along for violent measures, inveighed bitterly against the consul for refusing to succour the republic in her greatest distress. Scipio Nasica was the great grandson of Cneius Scipio, the uncle of the first Africanus, and consequently cousin to the Gracchi by their mother Cornelia. But nevertheless not one of the senators betrayed a more irreconcilable hatred against the tribune than he. When the prudent consul refused to arm his legions, and put the adherents of Gracchus to death contrary to the usual forms of justice, he set no bounds to his fury, but, rising up from his place, cried out like a madman, "Since our consul betrays us, let those who love the republic follow me." Having uttered these words, he immediately walked out of the temple, attended by a great number of senators.

Nasica threw his robe over his shoulders, and having covered his head with it, advanced with his followers into the crowd, where he was joined by a company of the clients and friends of the patricians, armed with staves and clubs. These, falling indifferently upon all who stood in their way, dispersed the crowd. Many of Gracchus's party took to their heels; and in that tumult all the seats being overturned and broken, Nasica, armed with the leg of a broken bench, knocked down all who opposed him, and at length reached Gracchus. One of his party seized the tribune by the lappet of his robe: but he, quitting his gown, fled in his tunic; and as he was in that hurry of spirits, which is inseparable from fear, leaping over the broken benches, he had the misfortune to slip and fall. As he was getting up again, he received a blow on the head, which stunned him: then his adversaries rushing in upon him, with repeated blows put an end to his life.

Rome was by his death delivered, according to Cicero, from a domestic enemy, who was more formidable to her than even that Numantia, which had first kindled his resentments. Perhaps no man was ever born with greater talents, or more capable of aggrandizing himself, and doing honour to his country. But his great mind, his manly courage, his lively, easy, and powerful eloquence, were, says Cicero, like a sword in the hands of a madman. Gracchus abused them, not in supporting an unjust cause, but in conducting a good one with too much violence. He went so far as to make some believe that he had really something in view besides the interest of the people whom he pretended to relieve; and therefore some historians have represented him as a tyrant. But the most judicious writers clear him from this imputation, and ascribe his first design of reviving the Licinian law to an eager desire of being revenged on the senators for the affront they had very unjustly put upon him, and the consul Mancinus, as we have hinted above. The law he attempted to revive had an air of justice, which gave a sanction to his revenge, without casting any blemish on his reputation.

The death of Gracchus did not put an end to the tumult. Above 300 of the tribune's friends lost their lives in the fray; and their bodies were thrown, with that of Gracchus, into the Tiber. Nay, the senate carried their revenge beyond the fatal day which had stained the Capitol with Roman blood. They sought for all the friends of the late tribune, and without any form of law assassinated some, and forced others into banishment. Caius Billius, one of the most zealous defenders of the people, was seized by his enemies, and shut up in a cask with snakes and vipers, where he miserably perished. Though the laws prohibited any citizen to take away the life of another before he had been legally condemned, Nasica and his followers were acquitted by the senate, who enacted a decree, justifying all the cruelties committed against Gracchus and his adherents.

These disturbances were for a short time interrupted by a revolt of the slaves in Sicily, occasioned by the cruelty of their masters; but they being soon reduced, the contests about the *Sempronian law*, as it was called, again took place. Both parties were determined not to yield; and therefore the most fatal effects ensued. The first thing of consequence was the death of Sci-

Rome.
180
A scuffle
ensues, in
which
Gracchus
is killed.

181
His friends
massacred.

182
The distur-
bances in-
crease.

Rome. **pio Africanus the Second, who was privately strangled** in his bed by some of the partisans of the plebeian party, about 129 B. C. Caius Gracchus, brother to him who had been formerly killed, not only undertook the revival of the Sempronian law, but proposed a new one, granting the rights of Roman citizens to all the Italian allies, who could receive no share of the lands divided in consequence of the Sempronian law. The consequences of this were much worse than the former; the flame spread through all Italy; and the nations who had made war with the republic in its infancy again commenced enemies more formidable than before. Fregellæ, a city of the Volsci, revolted: but being suddenly attacked, was obliged to submit, and was rased to the ground; which quieted matters for the present. Gracchus, however, still continued his attempts to humble the senate and the rest of the patrician body: the ultimate consequence of which was, that a price was set on his head, and that of Fulvius his confederate, no less than their weight in gold, to any one who should bring them to Opimius the chief of the patrician party. Thus the custom of proscription was begun by the patricians, of which they themselves soon had enough. Gracchus and Fulvius were sacrificed, but the disorders of the republic were not so easily cured.

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The custom
of proscrip-
tion begun.

* See Nu-
midia.

The inundation of the Cimbri and Teutones put a stop to the civil discords for some time longer; but they being defeated, as related under the articles CIMBRI and TEUTONES, nothing prevented the troubles from being revived with greater fury than before, except the war with the Sicilian slaves, which had again commenced with more dangerous circumstances than ever. But this war being totally ended about 99 B. C. no farther obstacle remained. Marius, the conqueror of Jugurtha * and the Cimbri, undertook the cause of the plebeians against the senate and patricians. Having associated himself with Apuleius and Glaucia, two factious men, they carried their proceedings to such a length, that an open rebellion commenced, and Marius himself was obliged to act against his allies. Peace, however, was for the present restored by the massacre of Apuleius and Glaucia, with a great number of their followers; upon which Marius thought proper to leave the city.

While factious men thus endeavoured to tear the republic in pieces, the attempts of well-meaning people to heal those divisions served only to involve the state in calamities still more grievous. The consuls observed, that many individuals of the Italian allies lived at Rome, and falsely pretended to be Roman citizens. By means of them, it was likewise perceived, that the plebeian party had acquired a great deal of its power; as the votes of these pretended citizens were always at the service of the tribunes. The consuls therefore got a law passed, commanding all those pretended citizens to return home. This was so much resented by the Italian states, that an universal defection took place. A scheme was then formed by M. Livius Drusus, a tribune of the people, to reconcile all orders of men; but this only made matters worse, and procured his own assassination. His death seemed a signal for war. The Marsi, Peligni, Samnites, Campanians, and Lucanians, and in short all the provinces from the river Liris to the Adriatic, revolted at once, and formed themselves into a republic, in opposition to that of Rome.

183
The social
war

The haughty Romans were now made thoroughly sensible that they were not invincible: they were defeated in almost every engagement; and must soon have yielded, had they not fallen upon a method of dividing their enemies. A law was passed, enacting, that all the nations in Italy, whose alliance with Rome was indisputable, should enjoy the right of Roman citizens. This drew off several nations from the alliance; and at the same time, Sylla taking upon him the command of the Roman armies, fortune soon declared in favour of the latter.

The success of Rome against the allies served only to bring greater miseries upon herself. Marius and Sylla became rivals; the former adhering to the people, and the latter to the patricians. Marius associated with one of the tribunes named *Sulpicius*; in conjunction with whom he raised such disturbances, that Sylla was forced to retire from the city. Having thus driven off his rival, Marius got himself appointed general against Mithridates † king of Pontus; but the soldiers refused † See Pontus. to obey any other than Sylla. A civil war immediately ensued, in which Marius was driven out in his turn, and a price set upon his head and that of Sulpitius, with many of their adherents. Sulpitius was soon seized and killed; but Marius made his escape. In the mean time, however, the cruelties of Sylla rendered him obnoxious both to the senate and people; and Cinnna, a furious partisan of the Marian faction, being chosen consul, cited him to give an account of his conduct. Upon this Sylla thought proper to set out for Asia: Marius was recalled from Africa, whither he had fled; and immediately on his landing in Italy, was joined by a great number of shepherds, slaves, and men of desperate fortunes; so that he soon saw himself at the head of a considerable army.

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Horrid
cruelties
committed
by Cinna,
Marius, &c.

Cinna, in the mean time, whom the senators had deposed and driven out of Rome, solicited and obtained a powerful army from the allies; and being joined by Sertorius, a most able and experienced general, the two, in conjunction with Marius, advanced towards the capital; and as their forces daily increased, a fourth army was formed under the command of Papirius Carbo. The senate raised some forces to defend the city; but the troops being vastly inferior in number, and likewise inclined to the contrary side, they were obliged to open their gates to the confederates. Marius entered at the head of a numerous guard, composed of slaves, whom he called his *Bardiæans*, and whom he designed to employ in revenging himself on his enemies. The first order he gave these assassins was, to murder all who came to salute him, and were not answered with the like civility. As every one was forward to pay his compliments to the new tyrant, this order proved the destruction of vast numbers. At last these *Bardiæans* abandoned themselves to such excesses in every kind of vice, that Cinna and Sertorius ordered their troops to fall upon them; which being instantly put in execution, they were all cut off to a man.

By the destruction of his guards, Marius was reduced to the necessity of taking a method of gratifying his revenge somewhat more tedious, though equally effectual. A conference was held between the four chiefs, in which Marius seemed quite frantic with rage. Sertorius endeavoured to moderate his fury ; but, being

Rome.

† See Pen
#45.

184
Horrid
cruelties
committed
by Cinna,
Marius, &c

Rome. over-ruled by Cinna and Carbo, a resolution was taken to murder without mercy all the senators who had opposed the popular faction. This was immediately put in execution. A general slaughter commenced, which lasted five days, and during which the greatest part of the obnoxious senators were cut off, their heads stuck upon poles over-against the rostra, and their bodies dragged with hooks into the forum, where they were left to be devoured by dogs. Sylla's house was demolished, his goods confiscated, and he himself declared an enemy to his country; however, his wife and children had the good fortune to make their escape.—This massacre was not confined to the city of Rome. The soldiers, like as many blood-hounds, were dispersed over the country in search of those who fled. The neighbouring towns, villages, and all the highways, swarmed with assassins; and on this occasion Plutarch observes with great concern, that the most sacred ties of friendship and hospitality are not proof against treachery, in the day of adversity, for there were but very few who did not discover their friends who had fled to them for shelter.

185
Sylla threatens re-venge.

This slaughter being over, Cinna named himself and Marius consuls for the ensuing year; and these tyrants seemed resolved to begin the new year as they had ended the old one: but, while they were preparing to renew their cruelties, Sylla, having proved victorious in the east, sent a long letter to the senate, giving an account of his many victories, and his resolution of returning to Rome, not to restore peace to his country, but to revenge himself of his enemies, *i. e.* to destroy those whom Marius had spared. This letter occasioned an universal terror. Marius, dreading to enter the lists with such a renowned warrior, gave himself up to excessive drinking, and died. His son was associated with Cinna in the government, though not in the consulship, and proved a tyrant no less cruel than his father. The senate declared one Valerius Flaccus general of the forces in the east, and appointed him a considerable army; but the troops all to a man deserted him, and joined Sylla. Soon after, Cinna declared himself consul a third time, and took for his colleague Papirius Carbo; but the citizens, dreading the tyranny of these inhuman monsters, fled in crowds to Sylla, who was now in Greece. To him the senate sent deputies, begging that he would have compassion on his country, and not carry his resentment to such a length as to begin a civil war: but he replied, that he was coming to Rome full of rage and revenge; and that all his enemies, if the Roman people consented to it, should perish either by the sword or the axes of the executioners. Upon this several very numerous armies were formed against him; but, through the misconduct of the generals who commanded them, these armies were everywhere defeated, or went over to the enemy. Pompey, afterwards styled *the Great*, signalized himself in this war, and embraced the party of Sylla. The Italian nations took some one side and some another, as their different inclinations led them. Cinna, in the mean time, was killed in a tumult, and young Marius and Carbo succeeded him; but the former having ventured an engagement with Sylla, was by him defeated, and forced to fly to Præneste, where he was closely besieged.

Thus was Rome reduced to the lowest degree of misery, when one Pontius Telefinus, a Samnite of great experience in war, projected the total ruin of the city. He had joined, or pretended to join, the generals of the Marian faction with an army of 40,000 men; and therefore marched towards Præneste, as if he designed to relieve Marius. By this means he drew Sylla and Pompey away from the capital; and then, decamping in the night, over-reached these two generals, and by break of day was within 10 furlongs of the Collatine gate. He then pulled off the mask; and declaring himself as much an enemy to Marius as to Sylla, told his troops, that it was not his design to assist one Roman against another, but to destroy the whole race. "Let fire and sword (said he) destroy all; let no quarter be given; mankind can never be free as long as one Roman is left alive."—Never had this proud metropolis been in greater danger; nor ever had any city a more narrow escape. The Roman youth marched out to oppose him, but were driven back with great slaughter. Sylla himself was defeated, and forced to fly to his camp. Telefinus advanced with more fury than ever; but, in the mean time, the other wing of his army having been defeated by M. Crassus, the victorious general attacked the body where Telefinus commanded, and by putting them to flight, saved his country from the most imminent danger.

Rome.
186
Rome in danger from Telefinus a Samnite.

Sylla, having now no enemy to fear, marched first to Atenæ, and thence to Rome. From the former city he carried 8000 prisoners to Rome, and caused them all to be massacred at once in the circus. His cruelty next fell upon the Prænestines, 12,000 of whom were massacred without mercy. Young Marius had killed himself, in order to avoid falling into the hands of such a cruel enemy. Soon after, the inhabitants of Norba, a city of Campania, finding themselves unable to resist the forces of the tyrant, set fire to their houses, and all perished in the flames. The taking of these cities put an end to the civil war, but not to the cruelties of Sylla. Having assembled the people in the comitium, he told them, that he was resolved not to spare a single person who had borne arms against him. This cruel resolution he put in execution with the most unrelenting vigour; and having at last cut off all those whom he thought capable of opposing him, Sylla caused himself to be declared perpetual dictator, or, in other words, king and absolute sovereign of Rome.

187
Monstrous cruelty of Sylla.

This revolution happened about 80 B. C. and from this time we may date the loss of the Roman liberty. Sylla indeed resigned his power in two years; but the citizens of Rome having once submitted, were ever after more inclined to submit to a master. Though individuals retained the same enthusiastic notions of liberty as before, yet the minds of the generality seem from this time to have inclined towards monarchy. New masters were indeed already prepared for the republic. Cæsar and Pompey had eminently distinguished themselves by their martial exploits, and were already rivals. They were, however, for some time prevented from raising any disturbances by being kept at a distance from each other. Sertorius, one of the generals of the Marian faction, and the only one of them possessed either of honour or probity, had retired into

188
He is proclaimed perpetual dictator.

Rome.

into Spain, where he erected a republic independent of Rome. Pompey and Metellus, two of the best reputed generals in Rome, were sent against him; but instead of conquering, they were on all occasions conquered by him, and obliged to abandon their enterprise with disgrace. At last Sertorius was treacherously murdered; and the traitors, who after his death usurped the command, being totally destitute of his abilities, were easily defeated by Pompey; and thus that general reaped an undeserved honour from concluding the war with success.

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Pompey
and Crassus
assume
great au-
thority.

The Spanish war was scarce ended, when a very dangerous one was excited by Spartacus, a Thracian gladiator. For some time this rebel proved very successful; but at last was totally defeated and killed by Crassus. The fugitives, however, rallied again, to the number of 5000; but, being totally defeated by Pompey, the latter took occasion from thence to claim the glory which was justly due to Crassus. Being thus become extremely popular, and setting no bounds to his ambition, he was chosen consul along with Crassus. Both generals were at the head of powerful armies; and a contest between them immediately began about who should first lay down their arms. With difficulty they were in appearance reconciled, and immediately began to oppose one another in a new way. Pompey courted the favour of the people, by reinstating the tribunes in their ancient power, which had been greatly abridged by Sylla. Crassus, though naturally covetous, entertained the populace with surprising profusion at 10,000 tables, and at the same time distributed corn sufficient to maintain their families for three months.—These prodigious expences will seem less surprising, when we consider that Crassus was the richest man in Rome, and that his estate amounted to upwards of 7000 talents, *i. e.* 1,356,250 l. sterling. Notwithstanding his utmost efforts, however, Pompey still had the superiority; and was therefore proposed as a proper person to be employed for clearing the seas of pirates. In this new station a most extensive power was to be granted to him. He was to have an absolute authority for three years over all the seas within the straits or pillars of Hercules, and over all the countries for the space of 400 furlongs from the sea. He was empowered to raise as many soldiers and mariners as he thought proper; to take what sums of money he pleased out of the public treasury without being accountable for them; and to choose out of the senate fifteen senators to be his lieutenants, and to execute his orders when he himself could not be present. The sensible part of the people were against investing one man with so much power; but the unthinking multitude rendered all opposition fruitless. The tribune Roscius attempted to speak against it, but was prevented by the clamours of the people. He then held up two of his fingers, to show that he was for dividing that extensive commission between two persons: but on this the assembly burst out into such hideous outcries, that a crow flying accidentally over the comitium, was stunned with the noise, and fell down among the rabble. This law being agreed to, Pompey executed his commission so much to the public satisfaction, that on his return a new law was proposed in his favour. By this he was to be appointed general of all the forces in Asia; and as he was still to retain the sovereignty of the seas, he was now in

fact made sovereign of all the Roman empire. This law was supported by Cicero and Cæsar, the former aspiring at the consulate, and the latter pleased to see the Romans so readily appointing themselves a master. Pompey, however, executed his commission with the utmost fidelity and success, completing the conquest of Pontus, Albania, Iberia, &c. which had been successfully begun by Sylla and Lucullus.

But while Pompey was thus aggrandising himself, the republic was on the point of being subverted by a conspiracy formed by Lucius Sergius Catiline. He was descended from an illustrious family; but having quite ruined his estate, and rendered himself infamous by a series of the most detestable crimes, he associated with a number of others in circumstances similar to his own, in order to repair their broken fortunes by ruining their country. Their scheme was to murder the consuls together with the greatest part of the senators, set fire to the city in different places, and then seize the government. This wicked design miscarried twice; but was not on that account dropped by the conspirators. Their party increased every day; and both Cæsar and Crassus, who since the departure of Pompey had studied to gain the affections of the people as far as possible, were thought to have been privy to the conspiracy. At last, however, the matter was discovered by means of a young knight, who had indiscreetly revealed the secret to his paramour. Catiline then openly took the field, and soon raised a considerable army: but was utterly defeated and killed about 62 B. C.; and thus the republic was freed from the present danger.

In the mean time, Cæsar continued to advance in popularity and in power. Soon after the defeat of Catiline, he was created pontifex maximus; and after that was sent into Spain, where he subdued several nations that had never before been subject to Rome.—While he was thus employed, his rival Pompey returned from the east, and was received with the highest honours; but though still as ambitious as ever, he now affected extraordinary modesty, and declined accepting of the applause which was offered him. His aim was to assume a sovereign authority without seeming to desire it; but he was soon convinced, that, if he desired to reign over his fellow-citizens, it must be by force of arms. He therefore renewed his intrigues, and spared no pains, however mean and scandalous, to increase his popularity. Cæsar, on his return from Spain, found the sovereignty divided between Crassus and Pompey, each of whom was ineffectually struggling to get the better of the other. Cæsar, no less ambitious than the other two, proposed that they should put an end to their differences, and take him for a partner in their power. In short, he projected a triumvirate, or association of three persons, (Pompey, Crassus, and himself), in which triumvirate should be lodged the whole power of the senate and people; and, in order to make their confederacy more lasting, they bound themselves by mutual oaths and promises to stand by each other, and suffer nothing to be undertaken or carried into execution without the unanimous consent of all the three.

Thus was the liberty of the Romans taken away a second time, nor did they ever afterwards recover it; though at present none perceived that this was the case, except

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Conspirac-
of Catiline

191

The first
triumvirate.

Rome. except Cato. The association of the triumvirs was for a long time kept secret; and nothing appeared to the people except the reconciliation of Pompey and Crassus, for which the state reckoned itself indebted to Cæsar. The first consequence of the triumvirate was the consulship of Julius Cæsar. But though this was obtained by the favour of Pompey and Crassus, he found himself disappointed in the colleague he wanted to associate with him in that office. He had pitched upon one whom he knew he could manage as he pleased, and distributed large sums among the people in order to engage them to vote for him. The senate, however, and even Cato himself, resolved to defeat the triumvir at his own weapons; and having therefore set up another candidate, distributed such immense sums on the opposite side, that Cæsar, notwithstanding the vast riches he had acquired, was forced to yield. This defeat proved of small consequence. Cæsar let himself to engage the affections of the people; and this he did, by an agrarian law, so effectually, that he was in a manner idolized. The law was in itself very reasonable and just; nevertheless, the senate, perceiving the design with which it was proposed, thought themselves bound to oppose it. Their opposition, however, proved fruitless: the consul Bibulus, who shewed himself most active in his endeavours against it, was driven out of the assembly with the greatest indignity, and from that day became of no consideration; so that Cæsar was reckoned the sole consul.

The next step taken by Cæsar was to secure the knights, as he had already done the people; and for this purpose he abated a third of the rents which they annually paid into the treasury; after which he governed Rome with an absolute sway during the time of his consulship. The reign of this triumvir, however, was ended by his expedition into Gaul, where his military exploits acquired him the highest reputation.—Pompey and Crassus in the mean time became consuls, and governed as despotically as Cæsar himself had done. On the expiration of their first consulship, the republic fell into a kind of anarchy, entirely owing to the disorders occasioned by the two late consuls. At last, however, this confusion was ended by raising Crassus and Pompey to the consulship a second time. This was no sooner done, than a new partition of the empire was proposed. Crassus was to have Syria and all the eastern provinces, Pompey was to govern Africa and Spain, and Cæsar to be continued in Gaul, and all this for the space of five years. This law was passed by a great majority; upon which Crassus undertook an expedition against the Parthians, whom he imagined he should easily overcome, and then enrich himself with their spoils; Cæsar applied with great assiduity to the completing of the conquest of Gaul; and Pompey having nothing to do in his province, staid at Rome to govern the republic alone.

The affairs of the Romans were now hastening to a crisis. Crassus, having oppressed all the provinces of the east, was totally defeated and killed by the Parthians*; after which the two great rivals Cæsar and Pompey were left alone, without any third person who could hold the balance between them, or prevent the deadly quarrels which were about to ensue. Matters, however, continued pretty quiet till Gaul was reduced to a Roman province †. The question then was, whether

ther Cæsar or Pompey should first resign the command of their armies, and return to the rank of private persons. As both parties saw, that whoever first laid down his arms must of course submit to the other, both refused to disarm themselves. As Cæsar, however, had amassed immense riches in Gaul, he was now in a condition not only to maintain an army capable of vying with Pompey, but even to buy over the leading men in Rome to his interest. One of the consuls, named *Æmilius Paulus*, cost him no less than 1500 talents, or 310,625 l. sterling; but the other, named *Marcellus*, could not be gained at any price. Pompey had put at the head of the tribunes one Scribonius Curio, a young patrician of great abilities, but so exceedingly debauched and extravagant, that he owed upwards of four millions and a half of our money. Cæsar, by enabling him to satisfy his creditors, and supplying him with money to pursue his debaucheries, secured him in his interest; and Curio, without seeming to be in Cæsar's interest, found means to do him the most essential service. He proposed that both generals should be recalled; being well assured that Pompey would never consent to part with his army, or lay down the government of Spain with which he had been invested, so that Cæsar might draw from Pompey's refusal a pretence for continuing himself in his province at the head of his troops. This proposal threw the opposite party into great embarrassments; and while both professed their pacific intentions, both continued in readiness for the most obdurate and bloody war.—Cicero took upon himself the office of mediator; but Pompey would hearken to no terms of accommodation. The orator, surprised to find him so obdurate, at the same time that he neglected to strengthen his army, asked him with what forces he designed to make head against Cæsar? To which the other answered, that he needed but stamp with his foot, and an army would start up out of the ground. This confidence he assumed because he persuaded himself that Cæsar's men would abandon him if matters came to extremities. Cæsar, however, though he affected great moderation, yet kept himself in readiness for the worst; and therefore, when the senate passed the fatal decree for a civil war, he was not in the least alarmed. This decree was issued in the year 49 B. C. and was expressed in the following words: "Let the consuls for the year, the proconsul Pompey, the prætors, and all those in or near Rome who have been consuls, provide for the public safety by the most proper means." This decree was no sooner passed, than the consul Marcellus went, with his colleague Lentulus, to an house at a small distance from the town, where Pompey then was; and presenting him with a sword, "We require you (said he) to take upon you with this the defence of the republic, and the command of her troops." Pompey obeyed; and Cæsar was by the same decree divested of his office, and one Lucius Domitius appointed to succeed him, the new governor being empowered to raise 4000 men in order to take possession of his province.

War being thus resolved on, the senate and Pompey began to make the necessary preparations for opposing Cæsar. The attempt of the latter to withstand their authority they termed a *tumult*; from which contemptible epithet it appeared that they either did not know, or did not dread, the enemy whom they were bringing upon themselves. However, they ordered 30,000 Ro-

Rome

193
The decree
for a civil
war.

See Par-
thia.

192
Rivalship
of Cæsar
and Pom-
pey.
See Gaul.

Rome.

man forces to be assembled, together with as many foreign troops as Pompey should think proper; the expense of which armament was defrayed from the public treasury. The governments of provinces, and all public honours, were bestowed upon such as were remarkable for their attachment to Pompey and their enmity to Cæsar. The latter, however, was by no means wanting in what concerned his own interest. Three of the tribunes who had been his friends were driven out of Rome, and arrived in his camp disguised like slaves. Cæsar showed them to his army in this ignominious habit; and, setting forth the iniquity of the senate and patricians, exhorted his men to stand by their general under whom they had served so long with success; and finding by their acclamations that he could depend on them, he resolved to begin hostilities immediately.

194
Hostilities
begun by
Cæsar.

The first design of Cæsar was to make himself master of Ariminum, a city bordering upon Cisalpine Gaul, and consequently a part of his province; but as this would be looked upon as a declaration of war, he resolved to keep his design as private as possible. At that time he himself was at Ravenna, from whence he sent a detachment towards the Rubicon, desiring the officer who commanded it to wait for him on the banks of that river. The next day he assisted at a show of gladiators, and made a great entertainment. Towards the close of the day he rose from table, desiring his guests to stay till he came back, which he said would be very soon; but, instead of returning to the company, he immediately set out for the Rubicon, having left orders to some of his most intimate friends to follow him through different roads, to avoid being observed. Having arrived at the Rubicon, which parted Cisalpine Gaul from Italy, the succeeding misfortunes of the empire occurred to his mind, and made him hesitate. Turning then to Asinius Pollio, "If I do not cross the river (said he), I am undone; and if I do cross it, how many calamities shall I by this means bring upon Rome!" Having thus spoken, he mused a few minutes; and then crying out, "The die is cast," he threw himself into the river, and crossing it, marched with all possible speed to Ariminum, which he reached and surprised before day-break. From thence, as he had but one legion with him, he dispatched orders to the formidable army he had left in Gaul to cross the mountains and join him.

The activity of Cæsar struck the opposite party with the greatest terror; and indeed not without reason, for they had been extremely negligent in making preparations against such a formidable opponent. Pompey himself, no less alarmed than the rest, left Rome with a design to retire to Capua, where he had two legions whom he had formerly draughted out of Cæsar's army. He communicated his intended flight to the senate; but at the same time acquainted them, that if any magistrate or senator refused to follow him, he should be treated as a friend to Cæsar and an enemy to his country. In the mean time Cæsar, having raised new troops in Cisalpine Gaul, sent Marc Antony with a detachment to seize Aretium, and some other officers to secure Pisaurum and Fanum, while he himself marched at the head of the thirteenth legion to Auximum, which opened its gates to him. From Auximum he advanced into Picenum, where he was joined by the twelfth legion from Transalpine Gaul. As Picenum readily submitted to him, he led his forces against Corfinium, the capital of

195
Takes several towns.

the Peligni, which Domitus Ahenobarbus defended with thirty cohorts. But Cæsar no sooner invested it, than the garrison betrayed their commander, and delivered him up with many senators, who had taken refuge in the place, to Cæsar, who granted them their lives and liberty. Domitius, fearing the resentment of the conqueror, had ordered one of his slaves, whom he used as a physician, to give him a dose of poison. When he came to experience the humanity of the conqueror, he lamented his misfortune, and blamed the hastiness of his own resolution. But his physician, who had only given him a sleeping draught, comforted him, and received his liberty as a reward for his affection.

Pompey, thinking himself no longer safe at Capua after the reduction of Corfinium, retired to Brundisium, with a design to carry the war into the east, where all the governors were his creatures. Cæsar followed him close; and arriving with his army before Brundisium, invested the place on the land-side, and undertook to shut up the port by a staccado of his own invention. But, before the work was completed, the fleet which had conveyed the two consuls with thirty cohorts to Dyrrhachium being returned, Pompey resolved to make his escape, which he conducted with all the experience and dexterity of a great officer. He kept his departure very secret; but, at the same time, made all necessary preparations for the facilitating of it. In the first place, he walled up the gates, then dug deep and wide ditches cross all the streets, except only those two that led to the port; in the ditches he planted sharp pointed stakes, covering them with hurdles and earth. After these precautions, he gave express orders that all the citizens should keep within doors, lest they should betray his design to the enemy; and then, in the space of three days, embarked all his troops, except the light-armed infantry, whom he had placed on the walls; and these likewise, on a signal given, abandoning their posts, repaired with great expedition to the ships. Cæsar, perceiving the walls unguarded, ordered his men to scale them, and make what haste they could after the enemy. In the heat of the pursuit, they would have fallen into the ditches which Pompey had prepared for them, had not the Brundisians warned them of the danger, and, by many windings and turnings, led them to the haven, where they found all the fleet under sail, except two vessels, which had run aground in going out of the harbour. These Cæsar took, made the soldiers on board prisoners, and brought them ashore.

Cæsar, seeing himself, by the flight of his rival, master of all Italy from the Alps to the sea, was desirous to follow and attack him before he was joined by the supplies which he expected from Asia. But being destitute of shipping, he resolved to go first to Rome, and settle some sort of government there; and then pass into Spain, to drive from thence Pompey's troops, who had taken possession of that great continent, under the command of Afranius and Petreius. Before he left Brundisium, he sent Scribonius Curio with three legions into Sicily, and ordered Q. Valerius, one of his lieutenants, to get together what ships he could, and cross over with one legion into Sardinia. Cato, who commanded in Sicily, upon the first news of Curio's landing there, abandoned the island, and retired to the camp of the consuls at Dyrrhachium; and Q. Valerius no sooner appeared with his small fleet off Sardinia,

Rome.

196
Besieges Pompey, who escapes by a stratagem.

Rome.

than the Caralitini, now the inhabitants of Cagliari, drove out Aurelius Cotta, who commanded there for the senate, and put Cæsar's lieutenant in possession both of their city and island.

197
Cæsar goes
to Rome.

In the mean time the general himself advanced towards Rome; and on his march wrote to all the senators then in Italy, desiring them to repair to the capital, and assist him with their counsel. Above all, he was desirous to see Cicero; but could not prevail upon him to return to Rome. As Cæsar drew near the capital, he quartered his troops in the neighbouring municipia; and then advancing to the city, out of a pretended respect to the ancient customs, he took up his quarters in the suburbs, whether the whole city crowded to see the famous conqueror of Gaul, who had been absent near ten years. And now such of the tribunes of the people as had fled to him for refuge reassumed their functions, mounted the rostra, and endeavoured by their speeches to reconcile the people to the head of their party. Marc Antony particularly, and Cassius Longinus, two of Cæsar's most zealous partisans, moved that the senate should meet in the suburbs, that the general might give them an account of his conduct. Accordingly, such of the senators as were at Rome assembled; when Cæsar made a speech in justification of all his proceedings, and concluded his harangue with proposing a deputation to Pompey, with offers of an accommodation in an amicable manner. He even desired the conscript fathers, to whom in appearance he paid great deference, to nominate some of their venerable body to carry proposals of peace to the consuls, and the general of the consular army; but none of the senators would take upon him that commission. He then began to think of providing himself with the necessary sums for carrying on the war, and had recourse to the public treasury. But Metellus, one of the tribunes, opposed him; alleging a law forbidding any one to open the treasury, but in the presence and with the consent of the consuls. Cæsar, however, without regarding the tribune, went directly to the temple of Saturn, where the public money was kept. But the keys of the treasury having been carried away by the consul Lentulus, he ordered the doors to be broken open. This Metellus opposed: but Cæsar, in a passion, laying his hand on his sword, threatened to kill him if he gave him any farther disturbance; which so terrified Metellus, that he withdrew. Cæsar took out of the treasury, which was ever after at his command, an immense sum; some say, 300,000 pounds weight of gold. With this supply of money he raised troops all over Italy, and sent governors into all the provinces subject to the republic.

198
Supplies
himself
with money
from
the public
treasury.

Cæsar now made Marc Antony commander in chief of the armies in Italy, sent his brother C. Antonius to govern Illyricum, assigned Cisalpine Gaul to Licinius Crassus, appointed M. Æmilius Lepidus governor of the capital; and having got together some ships to cruise in the Adriatic and Mediterranean seas, he gave the command of one of his fleets to P. Cornelius Dolabella, and of the other to young Hortensius, the son of the famous orator. As Pompey had sent governors into the same provinces, by this means a general war was kindled in almost all the parts of the known world. However, Cæsar would not trust any of his lieutenants with the conduct of the war in Spain, which was Pompey's favourite province, but took it upon himself; and

having settled his affairs in great haste at Rome, returned to Ariminum, assembled his legions there, and passing the Alps, entered Transalpine Gaul. There he was informed that the inhabitants of Marseilles had resolved to refuse him entrance into their city; and that L. Domitius Ahenobarbus, whom he had generously pardoned and set at liberty after the reduction of Corfinium, had set sail for Marseilles with seven galleys, having on board a great number of his clients and slaves, with a design to raise the city in favour of Pompey. Cæsar, thinking it dangerous to let the enemy take possession of such an important place, sent for the 15 chief magistrates of the city, and advised them not to begin a war with him, but rather follow the example of Italy, and submit. The magistrates returned to the city, and soon after informed him that they were to stand neuter; but in the mean time Domitius arriving with his small squadron, was received into the city, and declared general of all their forces. Hereupon Cæsar immediately invested the town with three legions, and ordered twelve galleys to be built at Arles, now *Arles*, in order to block up the port. But as the siege was like to detain him too long, he left C. Trebonius to carry it on, and D. Brutus to command the fleet, while he continued his march into Spain, where he began the war with all the valour, ability, and success of a great general. Pompey had three generals in this continent, which was divided into two Roman provinces. Varro commanded in Farther Spain; and Petreius and Afranius, with equal power, and two considerable armies, in Hither Spain. Cæsar, while he was yet at Marseilles, sent Q. Fabius, one of his lieutenants, with three legions, to take possession of the passes of the Pyrenees, which Afranius had seized. Fabius executed his commission with great bravery, entered Spain, and left the way open for Cæsar, who quickly followed him. As soon as he had crossed the mountains, he sent out scouts to observe the situation of the enemy; by whom he was informed, that Afranius and Petreius having joined their forces, consisting of five legions, 20 cohorts of the natives, and 5000 horse, were advantageously posted on an hill of an easy ascent in the neighbourhood of Ilerda, now *Lerida*, in Catalonia. Upon this advice Cæsar advanced within fight of the enemy, and encamped in a plain between the Sicoris and Cinga, now the *Segro* and *Cinca*. Between the eminence on which Afranius had posted himself, and the city of Ilerda, was a small plain, and in the middle of it a rising ground, which Cæsar attempted to seize, in order to cut off by that means the communication between the enemy's camp and the city, from whence they had all their provisions. This occasioned a sharp dispute between three of Cæsar's legions and an equal number of the enemy, which lasted five hours with equal success, both parties claiming the victory. But after all, Afranius's men, who had first seized the post, maintained themselves in possession of it in spite of Cæsar's utmost efforts. Two days after this battle, continual rains, with the melting of the snow on the mountains, so swelled the two rivers between which Cæsar was encamped, that they overflowed, broke down his bridges, and laid under water the neighbouring country to a great distance. This cut off the communication between his camp and the cities that had declared for him; and reduced him to such straits, that his army was ready to die for famine, wheat being sold in his

Rome.

199
Is reduced
to great
distress in
Spain.

Rome. camp at 50 Roman denarii *per* bushel, that is, 1 l. 12 s. 1½ d. sterling. He tried to rebuild his bridges, but in vain; the violence of the stream rendering all his endeavours fruitless.

Upon the news of Cæsar's distress, Pompey's party at Rome began to take courage. Several persons of distinction went to congratulate Afranius's wife on the success of her husband's arms in Spain. Many of the senators who had hitherto stood neuter, hastened to Pompey's camp, taking it for granted that Cæsar was reduced to the last extremity, and all hopes of his party lost. Of this number was Cicero; who, without any regard to the remonstrances of Atticus, or the letters Cæsar himself wrote to him, desiring him to join neither party, he left Italy, and landed at Dyrrhachium, where Pompey received him with great marks of joy and friendship. But the joy of Pompey's party was not long-lived. For Cæsar, after having attempted several times in vain to rebuild his bridges, caused boats to be made with all possible expedition; and while the enemy were diverted by endeavouring to intercept the succours that were sent him from Gaul, he laid hold of that opportunity to convey his boats in the night on carriages 22 miles from his camp; where with wonderful quickness a great detachment passed the Sicoris, and encamping on the opposite bank unknown to the enemy, built a bridge in two days, opened a communication with the neighbouring country, received the supplies from Gaul, and relieved the wants of his soldiers. Cæsar being thus delivered from danger, pursued the armies of Afranius and Petreius with such superior address and conduct, that he forced them to submit without coming to a battle, and by that means became master of all Hither Spain. The two generals disbanded their troops, sent them out of the province, and returned to Italy, after having solemnly promised never to assemble forces again, or make war upon Cæsar. Upon the news of the reduction of Hither Spain, the Spaniards in Farther Spain, and one Roman legion, deserted from Varro, Pompey's governor in that province, which obliged him to surrender his other legion and all his money.

Cæsar having thus reduced all Spain in a few months, appointed Cassius Longinus to govern the two provinces with four legions, and then returned to Marseilles; which city was just upon the point of surrendering after a most vigorous resistance. Though the inhabitants had by their late treachery deserved a severe punishment, yet he granted them their lives and liberty; but stripped their arsenals of arms, and obliged them to deliver up all their ships. From Marseilles Cæsar marched into Cisalpine Gaul; and from thence hastened to Rome, where he laid the foundation of his future grandeur. He found the city in a very different state from that in which he had left it. Most of the senators and magistrates were fled to Pompey at Dyrrhachium. However, there were still prætors there; and among them M. Æmilius Lepidus, who was afterwards one of the triumvirs with Octavius and Marc Antony. The prætor, to ingratiate himself with Cæsar, nominated him dictator of his own authority, and against the inclination of the senate. Cæsar accepted the new dignity; but neither abused his power, as Sylla had done, nor retained it so long. During the 11 days of his dictatorship, he governed with great moderation, and gained

the affections both of the people and the patricians. He recalled the exiles, granted the rights and privileges of Roman citizens to all the Gauls beyond the Po, and, as pontifex maximus, filled up the vacancies of the sacerdotal colleges with his own friends. Though it was expected that he would have absolutely cancelled all debts contracted since the beginning of the troubles, he only reduced the interest to one-fourth. But the chief use he made of his dictatorship was to preside at the election of consuls for the next year, when he got himself, and Servilius Isauricus, one of his most zealous partisans, promoted to that dignity.

And now being resolved to follow Pompey, and carry the war into the east, he set out for Brundisium, where he had ordered 12 legions to repair with all possible expedition. But on his arrival he found only five there. The rest, being afraid of the dangers of the sea, and unwilling to engage in a new war, had marched leisurely, complaining of their general for allowing them no respite, but hurrying them continually from one country to another. However, Cæsar did not wait for them, but set sail with only five legions and 600 horse in the beginning of January. While the rest were waiting at Brundisium for ships to transport them over into Epirus, Cæsar arrived safe with his five legions in Chaonia, the northern part of Epirus, near the Ceraunian mountains. There he landed his troops, and sent the ships back to Brundisium to bring over the legions that were left behind. The war he was now entering upon was the most difficult he had yet undertaken. Pompey had for a whole year been assembling troops from all the eastern countries. When he left Italy, he had only five legions; but since his arrival at Dyrrhachium he had been reinforced with one from Sicily, another from Crete, and two from Syria. Three thousand archers, six cohorts of slingers, and seven thousand horse, had been sent him by princes in alliance with Rome. All the free cities of Asia had reinforced his army with their best troops; nay, if we give credit to an historical poet, succours were brought him from the Indus and the Ganges to the east, and from Arabia and Ethiopia to the south; at least it is certain, that Greece, Asia Minor, Syria, Palestine, Egypt, and all the nations from the Mediterranean to the Euphrates, took up arms in his favour. He had almost all the Roman knights, that is, the flower of the young nobility, in his squadrons, and his legions consisted mostly of veterans inured to dangers and the toils of war. Pompey himself was a general of great experience and address; and had under him some of the best commanders of the republic, who had formerly conducted armies themselves. As for his navy, he had above 500 ships of war, besides a far greater number of small vessels, which were continually cruising on the coasts, and intercepted such ships as carried arms or provisions to the enemy. He had likewise with him above 200 senators, who formed a more numerous senate than that at Rome. Cornelius Lentulus and Claudius Marcellus, the last year's consuls, presided in it; but under the direction of Pompey their protector, who ordered them to assemble at Thessalonica, where he built a stately hall for that purpose. There, in one of their assemblies, at the motion of Cato, it was decreed, that no Roman citizen should be put to death but in battle, and that no city subject to the republic should be sacked. At the same time the

200
Overcomes
his difficul-
ties, and re-
duces all
Spain.

201
Returns to
Rome, and
is created
dictator.

Rome.

202
Follows
Pompey
no the
east.

conscript fathers assembled at Thessalonica decreed, that they alone represented the Roman senate, and that those who resided at Rome were encouragers of tyranny, and friends to the tyrant. And indeed, as the flower of the nobility was with Pompey, and the most virtuous men in the republic had taken refuge in his camp, he was generally looked upon as the only hope and support of the public liberty. Hence many persons of eminent probity, who had hitherto stood neuter, flocked to him from all parts. Among these were young Brutus, who afterwards conspired against Cæsar, Tidius Sextius, and Labienus. Brutus, whose father had been put to death in Galatia by Pompey's order, had never spoken to him, or so much as saluted him since that time: but as he now looked upon him as the defender of the public liberty, he joined him, sacrificing therein his private resentment to the interest of the public. Pompey received him with great joy, and was willing to confer upon him some command; but he declined the offer. Tidius Sextius, though extremely old and lame, yet left Rome, and went as far as Macedonia to join Pompey there. Labienus likewise forsook his old benefactor, under whom he had served during the whole course of the Gaulish war, and went over to his rival, though Cæsar had appointed him commander in chief of all the forces on the other side the Alps. In short, Pompey's party grew into such reputation, that his cause was generally called the *good cause*, while Cæsar's adherents were looked upon as enemies to their country, and abettors of tyranny.

As soon as Cæsar landed, he marched directly to Oricum, the nearest city in Epirus, which was taken without opposition. The like success attended him at Apollonia, which was in no condition to stand a siege; and these two conquests opened a way to Dyrrhachium, where Pompey had his magazines of arms and provisions. This success, however, was interrupted by the news that the fleet which he had sent back to Brundisium to transport the rest of his troops had been attacked by Bibulus, one of Pompey's admirals, who had taken 30, and inhumanly burnt them with the seamen on board. This gave Cæsar great uneasiness, especially as he heard that Bibulus, with 110 ships of war, had taken possession of all the harbours between Salonium and Oricum; so that the legions at Brundisium could not venture to cross the sea without great danger of falling into the enemy's hands. By this Cæsar was so much embarrassed, that he made proposals of accommodation upon very moderate terms; being no other than that both Pompey and he should disband their armies within three days, renew their former friendship with solemn oaths, and return together to Italy. These proposals were sent by Vibullius Rufus, an intimate friend of Pompey, whom Cæsar had twice taken prisoner. Pompey, however, probably elated with his late good fortune, answered that he would not hearken to any terms, lest it should be said that he owed his life and return to Italy to Cæsar's favour. However, the latter again sent one Vatinius to confer with Pompey about a treaty of peace. Labienus was appointed to receive the proposals; but while they were conferring together, a party of Pompey's men coming up to them, discharged their darts at Vatinius and those who attended him. Some of the guards were wounded, and Vatinius narrowly escaped with his life.

In the mean time Cæsar advanced towards Dyrrhachium, in hopes of surprising that important place; but Pompey unexpectedly appearing, he halted on the other side of the river Apus, where he intrenched himself, as having but a small number of troops in comparison of the formidable army which attended Pompey. The latter, however, notwithstanding his superiority, durst not cross the river in Cæsar's sight; so that the two armies continued for some time quiet in their respective camps. Cæsar wrote letter after letter to Marc Antony, who commanded the legions he had left in Italy, to come to his assistance; but receiving no answer, Cæsar disguised himself in the habit of a slave, and with all imaginable secrecy went on board a fisherman's bark, with a design to go over to Brundisium, though the enemy's fleet was cruising on the coasts both of Greece and Italy. This design, however, miscarried, by reason of the boat being put back by contrary winds; and thus Cæsar was restored to his soldiers, who had been very uneasy at his absence. He was no sooner landed than he dispatched Posthumus, one of his lieutenants, with most pressing orders to Marc Antony, Gabinius, and Calenus, to bring the troops to him at all adventures. Gabinius, unwilling to expose all the hopes of his general to the hazards of the sea, thought it safer to march a great way about by Illyricum, and therefore engaged all the legionaries he could to follow him by land. But the Illyrians, who had, unknown to him, declared for Pompey, fell unexpectedly upon him and killed him and his men, not one escaping. Marc Antony and Calenus, who went by sea, were in the greatest danger from one of Pompey's admirals; but had the good luck to bring their troops safe to shore at Nymphæum, in the neighbourhood of Apollonia. As soon as it was known that Antony was landed, Pompey marched to prevent his joining Cæsar. On the other hand, Cæsar instantly decamped, and hastening to the relief of his lieutenant, joined him before Pompey came up. Then Pompey, not caring to engage them when united, retired to an advantageous post in the neighbourhood of Dyrrhachium, known by the name of *Asparagium*, and there encamped. Cæsar having thus at length got all his troops together, resolved to finish the war by one general action, and determine the fate of the world, either by his own death or by that of his rival. To this end he offered Pompey battle, and kept his army a great while drawn up in sight of the enemy. But Pompey declining an engagement, he decamped, and turned towards Dyrrhachium, as if he designed to surprise it, hoping by this means to draw Pompey into the plain. But Pompey, looking upon the taking of Dyrrhachium as a chimerical project, followed Cæsar at some distance, and letting him draw near to the city, encamped on a hill called *Petra*, which commanded the sea, whence he could be supplied with provisions from Greece and Asia, while Cæsar was forced to bring corn by land from Epirus, at a vast expence, and through many dangers.

This inconvenience put Cæsar upon a new design, which was to surround an army far more numerous than his own, and, by shutting them up within a narrow tract of ground, distress them as much for want of forage as his troops were distressed for want of corn. Pursuant to this design, he drew a line of circumvallation from the sea quite round Pompey's camp, and kept Pompey in him his camp.

Rome.

him so closely blocked up, that though his men were plentifully supplied with provisions by sea, yet the horses of his army began soon to die in great numbers for want of forage. Cæsar's men, though in the utmost distress for want of corn, yet bore all with incredible cheerfulness; protesting, that they would rather live upon the bark of trees than suffer Pompey to escape, now they had him in their power. Cæsar tells us, that in this extremity such of the army as had been in Sardinia found out the way of making bread of a certain root called *clera*, which they steeped in milk; and that when the enemy insulted them on account of the starving condition which they were in, they threw several of these leaves among them, to put them out of all hopes of subduing them by famine. "So long as the earth produces such roots (said they), we will not let Pompey escape." At length Pompey, alarmed at the distempers which began to prevail in his army, made several attempts to break through the barriers that inclosed him, but was always repulsed with loss. At length, being reduced to the utmost extremity for want of forage, he resolved at all events to force the enemy's lines and escape. With the assistance, therefore, and by the advice of two deserters, he embarked his archers, slingers, and light-armed infantry, and marching himself by land at the head of 60 cohorts, went to attack that part of Cæsar's lines which was next to the sea, and not yet quite finished. He set out from his camp in the dead of the night, and arriving at the post he designed to force by break of day, he began the attack by sea and land at the same time. The ninth legion, which defended that part of the lines, made for some time a vigorous resistance; but being attacked in the rear by Pompey's men, who came by sea, and landed between Cæsar's two lines, they fled with such precipitation, that the succours Marcellinus sent them from a neighbouring post could not stop them. The ensign who carried the eagle at the head of the routed legion was mortally wounded; but nevertheless, before he died, had presence of mind enough to consign the eagle to the cavalry of the party, desiring them to deliver it to Cæsar. Pompey's men pursued the fugitives, and made such a slaughter of them, that all the centurions of the first cohort were cut off except one. And now Pompey's army broke in like a torrent upon the posts Cæsar had fortified, and were advancing to attack Marcellinus, who guarded a neighbouring fort; but Marc Antony coming very seasonably to his relief with 12 cohorts, they thought it advisable to retire.

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Cæsar defeated and in great danger.

Soon after Cæsar himself arrived with a strong reinforcement, and posted himself on the shore, in order to prevent such attempts for the future. From this post he observed an old camp which he had made within the place where Pompey was inclosed, but afterwards abandoned. Upon his quitting it, Pompey had taken possession of it, and left a legion to guard it. This post Cæsar resolved to reduce, hoping to repair the loss he had sustained on this unfortunate day, by taking the legion which Pompey had posted there. Accordingly, he advanced secretly at the head of 33 cohorts in two lines: and arriving at the old camp before Pompey could have notice of his march, attacked it with great vigour, forced the first intrenchment, notwithstanding the brave resistance of Titus Pulcio, and penetrated to the second, whither the legion had retired. But here

his fortune changed on a sudden. His right wing, in looking for an entrance into the camp, marched along the outside of a trench which Cæsar had formerly carried on from the left angle of his camp, about 400 paces, to a neighbouring river. This trench they mistook for the rampart of the camp; and being led away by that mistake from their left wing, they were soon after prevented from rejoining it by the arrival of Pompey, who came up at the head of a legion and a large body of horse. Then the legion which Cæsar had attacked taking courage, made a brisk sally, drove his men back to the first intrenchment which they had seized, and there put them in great disorder while they were attempting to pass the ditch. Pompey, in the mean time, falling upon them with his cavalry in flank, completed their defeat; and then flying to the enemy's right wing, which had passed the trench mentioned above, and was shut up between that and the ramparts of the old camp, made a most dreadful slaughter of them. The trench was filled with dead bodies, many falling into it in that disorder, and others passing over them and pressing them to death.

In this distress, Cæsar did all he could to stop the flight of his legionaries, but to no purpose: the standard-bearers themselves threw down the Roman eagles when Cæsar endeavoured to stop them, and left them in the hands of the enemy, who on this occasion took 32 standards; a disgrace which Cæsar had never suffered before. He was himself in no small danger of falling by the hand of one of his own men, whom he took hold of when flying, bidding him stand and face about; but the man, apprehensive of the danger he was in, drew his sword, and would have killed him, had not one of his guards prevented the blow by cutting off his arm. Cæsar lost on this occasion 960 of his foot, 400 of his horse, 5 tribunes, and 32 centurions.

This loss and disgrace greatly mortified Cæsar, but did not discourage him. After he had by his lenity and eloquent speeches recovered the spirit of his troops, he decamped, and retired in good order to Apollonia, where he paid the army, and left his sick and wounded. From thence he marched into Macedon, where Scipio Metellus, Pompey's father-in-law, was encamped. He hoped either to draw his rival into some plain, or to overpower Scipio if not assisted. He met with great difficulties on his march, the countries through which he passed refusing to supply his army with provisions; to such a degree was his reputation sunk since his last defeat! On his entering Thessaly he was met by Domitius, one of his lieutenants, whom he had sent with three legions to reduce Epirus. Having now got all his forces together, he marched directly to Gomphi, the first town of Thessaly, which had been formerly in his interest, but now declared against him. Whereupon he attacked it with so much vigour, that though the garrison was very numerous, and the walls were of an uncommon height, he made himself master of it in a few hours. From hence he marched to Metropolis, another considerable town of Thessaly, which immediately surrendered; as did all the other cities of the country, except Larissa, of which Scipio had made himself master.

On the other hand, Pompey being continually importuned by the senators and officers of his army, left his camp at Dyrrhachium, and followed Cæsar, firmly resolved

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Here he retired.

resolved not to give him battle, but rather to distress him by keeping close at his heels, straitening his quarters, and cutting off his convoys. As he had frequent opportunities of coming to an engagement, but always declined it, his friends and subalterns began to put ill constructions on his dilatoriness to his face.

These, together with the complaints of his soldiers, made him at length resolve to venture a general action. With this design he marched into a large plain near the cities of Pharfalia and Thebes; which latter was also called *Philippi*, from Philip king of Macedon, and the father of Perſes, who, having reduced the Thebans, placed a colony of Macedonians in their city. This plain was watered by the Enipeus, and surrounded on all sides by high mountains; and Pompey, who was still averse from venturing an engagement, pitched his camp on the declivity of a steep mountain, in a place altogether inaccessible. There he was joined by Scipio his father-in-law, at the head of the legions which he had brought with him from Syria and Cilicia. But notwithstanding this reinforcement, he continued irresolute, and unwilling to put all to the issue of a single action; being still convinced of the wisdom of his maxim, that it was better to destroy the enemy by fatigues and want, than to engage an army of brave veterans, who were in a manner reduced to despair. As he put off from day to day, under various pretences, descending into the plain where Cæsar was encamped, his officers forced him to call a council of war, when all to a man were for venturing a general action the very next day. Thus was Pompey obliged to sacrifice his own judgment to the blind ardour of the multitude; and the necessary measures were taken for a general engagement.

The event of this battle was in the highest degree fortunate for Cæsar †; who resolved to pursue his advantage, and follow Pompey to whatever country he should retire. Hearing, therefore, of his being at Amphipolis, he sent off his troops before him, and then embarked on board a little frigate in order to cross the Hellespont; but in the middle of the strait, he fell in with one of Pompey's commanders, at the head of ten ships of war. Cæsar, noway terrified at the superiority of his force, bore up to him, and commanded him to submit. The other instantly obeyed, awed by the terror of Cæsar's name, and surrendered himself and his fleet at discretion.

From thence he continued his voyage to Ephesus, then to Rhodes; and being informed that Pompey had been there before him, he made no doubt but that he was fled to Egypt; wherefore, losing no time, he set sail for that kingdom, and arrived at Alexandria with about 4000 men; a very inconsiderable force to keep such a powerful kingdom under subjection. But he was now grown so secure in his good fortune, that he expected to find obedience everywhere. Upon his landing, the first accounts he received were of Pompey's miserable end, who had been assassinated by orders of the treacherous king as soon as he went on shore; and soon after one of the murderers came with his head and ring as a most grateful present to the conqueror. But Cæsar turned away from it with horror, and shortly after ordered a magnificent tomb to be built to his memory on the spot where he was murdered; and a temple near the place, to Nemesis, who was the goddess

that punished those that were cruel to men in adversity. Rome;

It should seem that the Egyptians by this time had some hopes of breaking off all alliance with the Romans; which they considered, as in fact it was, but a specious subjection. They first began to take offence at Cæsar's carrying the ensigns of Roman power before him as he entered the city. Photinus, the eunuch, also treated him with disrespect, and even attempted his life: Cæsar, however, concealed his resentment till he had a force sufficient to punish his treachery; and sending privately for the legions which had been formerly enrolled for Pompey's service, as being the nearest to Egypt, he in the mean time pretended to repose an entire confidence in the king's minister. However, he soon changed his manner when he found himself in no danger from his attempts; and declared, that, as being a Roman consul, it was his duty to settle the succession to the Egyptian crown.

There were at that time two pretenders to the crown of Egypt: Ptolemy, the acknowledged king; and the celebrated Cleopatra his sister; who, by the custom of the country, was also his wife, and, by their father's will, shared jointly in the succession. However, not being contented with a bare participation of power, she aimed at governing alone; but being opposed in her views by the Roman senate, who confirmed her brother's title to the crown, she was banished into Syria with Antioch her younger sister.

Cæsar, however, gave her new hopes of obtaining the kingdom, and sent both for her and her brother to plead their cause before him. Photinus, the young king's guardian, who had long borne the most inveterate hatred as well to Cæsar as to Cleopatra, disdained this proposal, and backed his refusal by sending an army of 20,000 men to besiege him in Alexandria. Cæsar bravely repulsed the enemy for some time; but finding the city of too great extent to be defended by so small an army as he then had with him, he retired to the palace, which commanded the harbour, where he purposed to make a stand. Achilles, who commanded the Egyptians, attacked him there with great vigour, and still aimed at making himself master of the fleet that lay before the palace. Cæsar, however, too well knew the importance of those ships in the hands of an enemy; and therefore burnt them all in spite of every effort to prevent it. He next possessed himself of the isle of Pharos, which was the key to the Alexandrian port, by which he was enabled to receive the supplies sent him from all sides; and in this situation he determined to withstand the united force of all the Egyptians.

In the mean time, Cleopatra having heard of the present turn in her favour, resolved to depend rather on Cæsar's favour for gaining the government than her own forces. She had, in fact, assembled an army in Syria to support her claims; but now judged it the wisest way to rely entirely on the decision of her self-elected judge. But no arts, as she justly conceived, were so likely to influence Cæsar, as the charms of her person. The difficulty was how to get at Cæsar, as her enemies were in possession of all the avenues that led to the palace. For this purpose, she went on board a small vessel, and in the evening landed near the palace; where, being wrapped up in a coverlet, she was carried

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The Egyptians quarrel with Cæsar,

212
And besieged him in Alexandria,

Rome.

carried by one Aspolodorus into the very chamber of Cæsar. Her address at first pleased him; but her caresses, which were carried beyond the bounds of innocence, entirely brought him over to second her claims.

While Cleopatra was thus employed in forwarding her own views, her sister Arsinoë was also strenuously engaged in the camp in pursuing a separate interest. She had found means, by the assistance of one Ganymede her confident, to make a large division in the Egyptian army in her favour; and soon after caused Achillas to be murdered, and Ganymede to take the command in his stead, and to carry on the siege with greater vigour than before. Ganymede's principal effort was by letting in the sea upon those canals which supplied the palace with fresh water; but this inconvenience Cæsar remedied by digging a great number of wells. His next endeavour was to prevent the junction of Cæsar's 24th legion, which he twice attempted in vain. He soon after made himself master of a bridge which joined the isle of Pharos to the continent, from which post Cæsar was resolved to dislodge him. In the heat of action, some mariners came and joined the combatants; but being seized with a panic, instantly fled, and spread a general terror through the army. All Cæsar's endeavours to rally his forces were in vain, the confusion was past remedy, and numbers were drowned or put to the sword in attempting to escape; on which, seeing the irremediable disorder of his troops, he retired to a ship in order to get to the palace that was just opposite. However, he was no sooner on board than great crowds entered at the same time with him; upon which, apprehensive of the ship's sinking, he jumped into the sea, and swam 200 paces to the fleet that lay before the palace.

The Alexandrians, finding their efforts to take the palace ineffectual, endeavoured at least to get their king out of Cæsar's power, as he had seized upon his person in the beginning of their disputes. For this purpose they made use of their customary arts of dissimulation, professing the utmost desire for peace, and only wanting the presence of their lawful prince to give a sanction to the treaty. Cæsar, who was sensible of their perfidy, nevertheless concealed his suspicions, and gave them their king, as he was under no apprehensions from the abilities of a boy. Ptolemy, however, the instant he was set at liberty, instead of promoting peace, made every effort to give vigour to hostilities.

213
He is at last
relieved.

In this manner Cæsar was hemmed in for some time: but he was at last relieved from this mortifying situation by Mithridates Pergamenus, one of his most faithful partizans; who, collecting a numerous army in Syria, marched into Egypt, took the city of Pelusium, repulsed the Egyptian army with loss, and at last, joining with Cæsar, attacked their camp, and made a great slaughter of the Egyptians. Ptolemy himself, attempting to escape on board a vessel that was sailing down the river, was drowned by the ship's sinking; and Cæsar thus became master of all Egypt without any further opposition. He therefore appointed, that Cleopatra, with her younger brother, who was then but an infant, should jointly govern, according to the intent of their father's will; and drove out Arsinoë with Ganymede into banishment.

Cæsar now for a while seemed to relax from the usual activity of his conduct, captivated with the charms

of Cleopatra. Instead of quitting Egypt to go and quell the remains of Pompey's party, he abandoned himself to his pleasures, passing whole nights in feasts with the young queen. He even resolved to attend her up the Nile into Ethiopia; but the brave veterans, who had long followed his fortune, boldly reprehended his conduct, and refused to be partners in so infamous an expedition. Thus, at length, roused from his lethargy, he left Cleopatra, by whom he had a son who was afterwards named *Cæsario*, in order to oppose Pharnaces the king of Pontus, who had now made some inroads upon the dominions of Rome. Here he was attended with the greatest success, as we have related under the article *Pompey*; and having settled affairs in this part of the empire, as well as time would permit, he embarked for Italy, where he arrived sooner than his enemies could expect, but not before his affairs there absolutely required his presence. He had been, during his absence, created consul for five years, dictator for one year, and tribune of the people for life. But Antony, who in the mean time governed in Rome for him, had filled the city with riot and debauchery, and many commotions ensued, which nothing but the arrival of Cæsar could appease. However, by his moderation and humanity, he soon restored tranquillity to the city, scarce making any distinction between those of his own and the opposite party. Thus having, by gentle means, restored his authority at home, he prepared to march into Africa, where Pompey's party had found time to rally under Scipio and Cato, assisted by Juba king of Mauritania. But the vigour of his proceedings had like to have been retarded by a mutiny in his own army. Those veteran legions, who had hitherto conquered all that came before them, began to murmur for not having received the rewards which they had expected for their past services, and now insisted upon their discharge. However, Cæsar found means to quell the mutiny; and then, according to his usual diligence, landed with a small party in Africa, the rest of the army following soon after. After many movements and skirmishes, he resolved at last, to come to a decisive battle. For this purpose he invested the city of Tappus, supposing that Scipio would attempt its relief, which turned out according to his expectation. Scipio, joining with the young king of Mauritania, advanced with his army, and encamping near Cæsar, they soon came to a general battle. Cæsar's success was as usual; the enemy received a complete and final overthrow, with little loss on his side. Juba, and Petreus his general, killed each other in despair; Scipio, attempting to escape by sea into Spain, fell in among the enemy, and was slain; so that, of all the generals of that undone party, Cato was now alone remaining.

This extraordinary man, having retired into Africa after the battle of Pharfalia, had led the wretched remains of that defeat through burning deserts and tracts infested with serpents of various malignity, and was now in the city of Utica, which he had been left to defend. Still, however, in love with even the show of Roman government, he had formed the principal citizens into a senate, and conceived a resolution of holding out the town. He accordingly assembled his senators upon this occasion, and exhorted them to stand a siege; but finding his admonitions ineffectual, he stabbed himself with his sword. Upon his death, the

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Africa.

215
Defeat
pa-tisat
Pompey

215
Cato killed himself.

See Cato the

Rome. the war in Africa being completed, Cæsar returned in triumph to Rome; and, as if he had abridged all his former triumphs only to increase the splendour of this, the citizens were astonished at the magnificence of the procession, and the number of the countries he had subdued. It lasted four days: the first was for Gaul, the second for Egypt, the third for his victories in Asia, and the fourth for that over Juba in Africa. To every one of his soldiers he gave a sum equivalent to about 150*l.* of our money, double that sum to the centurions, and four times as much to the superior officers. The citizens also shared his bounty; to every one of whom he distributed 10 bushels of corn, 10 pounds of oil, and a sum of money equal to about two pounds Sterling of ours. He, after this, entertained the people at about 20,000 tables, treated them with the combat of gladiators, and filled Rome with a concourse of spectators from every part of Italy.

217
Honours
heaped up-
on him at
Rome.

The people now seemed eager only to find out new modes of homage and unusual methods of adulation for their great enslaver. He was created, by a new title, *Magister Morum*, or Master of the Morals of the People; he received the title of *Emperor*, *Father of his country*; his person was declared sacred; and, in short, upon him alone were devolved for life all the great dignities of the state. It must be owned, however, that no sovereign could make a better use of his power. He immediately began his empire by repressing vice and encouraging virtue. He communicated the power of judicature to the senators and the knights alone, and by many sumptuary laws restrained the scandalous luxuries of the rich. He proposed rewards to all such as had many children; and took the most prudent methods of re-peopling the city, that had been exhausted in the late commotions; and besides his other works, he greatly reformed the kalendar.

Having thus restored prosperity once more to Rome, he again found himself under a necessity of going into Spain, to oppose an army which had been raised there under the two sons of Pompey and Labienus his former general. He proceeded in this expedition with his usual celerity, and arrived in Spain before the enemy thought him yet departed from Rome. Cneius and Sextus, Pompey's sons, profiting by their unhappy father's example, resolved as much as possible to protract the war; so that the first operations of the two armies were spent in sieges and fruitless attempts to surprize each other. At length Cæsar, after taking many cities from the enemy, and pursuing young Pompey with unwearied perseverance, compelled him to come to a battle upon the plains of Munda.

218
Becomes
master of
the whole
empire by
his victory
at Munda.

After a most obstinate engagement, Cæsar gained a complete victory (see *MUNDA*); and having now subdued all his enemies, he returned to Rome for the last time to receive new dignities and honours, and to enjoy an accumulation of all the great offices of the state. Still, however, he pretended to a moderation in the enjoyment of his power; he left the consuls to be named by the people; but as he possessed all the authority of the office, it from this time began to sink into contempt. He enlarged the number of senators also; but as he had previously destroyed their power, their new honours were but empty titles. He took care to pardon all who had been in arms against him, but not till he had deprived them of the power

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of resistance. He even set up once more the statues of Pompey; which, however, as Cicero observed, he only did to secure his own. The rest of this extraordinary man's life was employed for the advantage of the state. He adorned the city with magnificent buildings; he rebuilt Carthage and Corinth, sending colonies to both cities; he undertook to level several mountains in Italy, to drain the Pontine marshes near Rome, and designed to cut through the Isthmus of Peloponnesus. Thus he formed mighty projects and designs beyond the limits of the longest life; but the greatest of all was his intended expedition against the Parthians, by which he designed to revenge the death of Crassus; then to pass through Hyrcania, and enter Scythia along the banks of the Caspian sea; from thence to open himself a way through the immeasurable forests of Germany into Gaul, and so return to Rome. These were the aims of ambition: but the jealousy of a few individuals put an end to them all.

Rome.
219
His vast
designs.

The senate, with an adulation which marked the degeneracy of the times, continued to load Cæsar with fresh honours, and he continued with equal vanity to receive them. They called one of the months of the year after his name; they stamped money with his image; they ordered his statue to be set up in all the cities of the empire; they instituted public sacrifices on his birth-day; and talked, even in his life-time, of enrolling him in the number of their gods. Antony, at one of their public festivals, foolishly ventured to offer him a diadem; but he put it back again, refusing it several times, and receiving at every refusal loud acclamations from the people. One day, when the senate ordered him some particular honours, he neglected to rise from his seat; and from that moment is said to have been marked for destruction. It began to be rumoured that he intended to make himself king; for though in fact he already was so, the people, who had an utter aversion to the name, could not bear his assuming the title. Whether he really designed to assume that empty honour must now for ever remain a secret; but certain it is, that the unsuspecting openness of his conduct marked something like a confidence in the innocence of his intentions. When informed by those about him of the jealousies of many persons who envied his power, he was heard to say, That he had rather die once by treason, than to live continually in the apprehension of it: and to convince the world how little he had to apprehend from his enemies, he disbanded his company of Spanish guards, which facilitated the enterprise against his life.

A deep-laid conspiracy was formed against him, composed of no less than 60 senators. At the head of this conspiracy was Brutus, whose life Cæsar had spared after the battle of Pharsalia, and Cassius, who had been pardoned soon after; both prætors for the present year. Brutus made it his chief glory to have been descended from that Brutus who first gave liberty to Rome; and from a desire of following his example, broke all the ties of private friendship, and entered into a conspiracy which was to destroy his benefactor. Cassius, on the other hand, was impetuous and proud, and hated Cæsar's person still more than his cause. He had often sought an opportunity of gratifying his revenge by assassination, which took rise rather from private than public motives.

220
A conspi-
racy form-
ed against
him.

Rome.

The conspirators, to give a colour of justice to their proceedings, remitted the execution of this design to the ides of March; the day on which it was reported that Cæsar was to be offered the crown. The augurs had foretold that this day would be fatal to him; and the night preceding, he heard his wife Calphurnia lamenting in her sleep, and being awakened, she confessed to him that she dreamt of his being assassinated in her arms. These omens, in some measure, began to change his intentions of going to the senate, as he had resolved, that day; but one of the conspirators coming in, prevailed upon him to keep his resolution, telling him of the reproach which would attend his staying at home till his wife had lucky dreams, and of the preparations that were made for his appearance. As he went along to the senate, a slave, who hastened to him with information of the conspiracy, attempted to come near him, but could not for the crowd. Artemidorus, a Greek philosopher, who had discovered the whole plot, delivered to him a memorial, containing the heads of his information; but Cæsar gave it, with other papers, to one of his secretaries without reading, as was usual in things of this nature. As soon as he had taken his place in the senate, the conspirators came near him, under a pretence of saluting him; and Cimber, who was one of them, approached in a suppliant posture, pretending to sue for his brother's pardon, who was banished by his order. All the conspirators seconded him with great tenderness; and Cimber, seeming to sue with still greater submission, took hold of the bottom of his robe, holding him so as to prevent his rising. This was the signal agreed on. Casca, who was behind, stabbed him, though slightly, in the shoulder. Cæsar instantly turned round, and with the style of his tablet wounded him in the arm. However, all the conspirators were now alarmed; and inclosing him round, he received a second stab from an unknown hand in the breast, while Cassius wounded him in the face. He still defended himself with great vigour, rushing among them, and throwing down such as opposed him, till he saw Brutus among the conspirators, who, coming up, struck his dagger in his thigh. From that moment Cæsar thought no more of defending himself, but looking upon this conspirator, cried out, "And you too, Brutus!" Then covering his head, and spreading his robe before him in order to fall with greater decency, he sunk down at the base of Pompey's statue, after receiving three and twenty wounds, in the 56th year of his age, and 4th of his reign.

221
He is murdered.

222
Great confusion occasioned by his death.

As soon as the conspirators had dispatched Cæsar, they began to address themselves to the senate, in order to vindicate the motives of their enterprise, and to excite them to join in procuring their country's freedom; but all the senators who were not accomplices fled with such precipitation, that the lives of some of them were endangered in the throng. The people also being now alarmed, left their usual occupations, and ran tumultuously through the city; some actuated by their fears, and still more by a desire of plunder. In this state of confusion, the conspirators all retired to the capitol, and guarded its access by a body of gladiators which Brutus had in pay. It was in vain they alleged they only struck for freedom, and that they killed a tyrant who usurped the rights of mankind: the people, accustomed to luxury and ease, little regarded their profes-

sions, dreading more the dangers of poverty than of subjection.

Rome.

The friends of the late dictator now began to find that this was the time for coming into greater power than before, and for satisfying their ambition under the veil of promoting justice. Of this number was Antony, whom we have already seen acting as a lieutenant under Cæsar. He was a man of moderate abilities and excessive vices; ambitious of power, but skilled in war, to which he had been trained from his youth. He was consul for this year; and resolved, with Lepidus, who was fond of commotions like himself, to seize this opportunity of assuming the sovereign power. Lepidus, therefore, took possession of the forum with a band of soldiers at his devotion; and Antony, being consul, was permitted to command them. Their first step was to possess themselves of all Cæsar's papers and money; and the next to convene the senate, in order to determine whether Cæsar had been a legal magistrate or a tyrannical usurper, and whether those who killed him merited rewards or punishments. There were many of these who had received their promotions from Cæsar, and had acquired large fortunes in consequence of his appointments: to vote him an usurper, therefore, would be to endanger their property; and yet to vote him innocent, might endanger the state. In this dilemma they seemed willing to reconcile extremes; wherefore they approved all the acts of Cæsar, and yet granted a general pardon to all the conspirators.

223
The conspirators pardoned by the senate.

This decree was very far from giving Antony satisfaction, as it granted security to a number of men who were the avowed enemies of tyranny, and who would be foremost in opposing his schemes of restoring absolute power. As therefore the senate had ratified all Cæsar's acts without distinction, he formed a scheme upon this of making him rule when dead as imperiously as he had done when living. Being, as was said, possessed of Cæsar's books of accounts, he so far gained upon his secretary as to make him insert whatever he thought proper. By these means, great sums of money, which Cæsar never would have bestowed, were here distributed among the people; and every man who was averse to republican principles was here sure of finding a gratuity. He then demanded that Cæsar's funeral obsequies should be performed; which the senate now could not decently forbid, as they had never declared him a tyrant. Accordingly, the body was brought forth into the forum with the utmost solemnity; and Antony began his operations upon the passions of the people, by the prevailing motives of private interest. He first read Cæsar's will, in which he had left Octavius, his sister's grandson, his heir, permitting him to take the name of Cæsar; and three parts of his private fortune Brutus was to inherit in case of his death. The Roman people were left the gardens which he had on the other side the Tiber; and every citizen, in particular, was to receive 300 sesterces. This last bequest not a little contributed to increase the people's affection for their late dictator; they now began to consider Cæsar as a father, who, not satisfied with doing them the greatest good while living, thought of benefiting them even after his death. As Antony continued reading, the multitude began to be moved, and sighs and lamentations were heard from every quarter. Antony, seeing the audience favourable

224
Antony inflames the people.

Rome.

avourable to his designs, now began to address the assembly in a more pathetic strain: he presented before them Caesar's bloody robe, and, as he unfolded it, took care they should observe the number of stabs in it: he then displayed an image, which to them appeared the body of Caesar, all covered with wounds. The people could now no longer contain their indignation; they unanimously cried out for revenge; all the old soldiers who had fought under him, burnt, with his body, their coronets, and other marks of conquest with which he had honoured them. A great number of the first matrons in the city threw in their ornaments also; till at length, rage succeeding to sorrow, the multitude ran with flaming brands from the pile to set fire to the conspirators houses. In this rage of resentment, meeting with one Cinna, whom they mistook for another of the same name who was in the conspiracy, they tore him in pieces. The conspirators themselves, however, being well guarded, repulsed the multitude with no great trouble; but perceiving the rage of the people, they thought it safest to retire from the city. Divine honours were then granted him; and an altar was erected on the place where his body was burnt, where afterwards was erected a column inscribed, *To the father of his country.*

225

He endeavours to engross the power entirely to his own hand.

In the mean time, Antony, who had excited this flame, resolved to make the best of the occasion. Having gained the people by his zeal in Caesar's cause, he next endeavoured to bring over the senate, by a seeming concern for the freedom of the state. He therefore proposed to recal Sextus, Pompey's only remaining son, who had concealed himself in Spain since the death of his father: and to grant him the command of all the fleets of the empire. His next step to their confidence, was the quelling a sedition of the people, who rose to revenge the death of Caesar, and putting their leader Amathus to death, who pretended to be the son of Marius. He after this pretended to dread the resentment of the multitude, and demanded a guard for the security of his person. The senate granted his request; and, under this pretext, he drew round him a body of 6000 resolute men, attached to his interest, and ready to execute his commands. Thus he continued every day making rapid strides to absolute power; all the authority of government was lodged in his hands and those of his two brothers alone, who shared among them the consular, tribunitian, and prætorian power. His vows to revenge Caesar's death seemed either postponed, or totally forgotten; and his only aim seemed to be to confirm himself in that power which he had thus artfully acquired. But an obstacle to his ambition seemed to arise from a quarter on which he least expected it. This was from Octavius, or Octavianus Caesar, afterwards called *Augustus*, who was the grand-nephew, and adopted son of Caesar, and was at Apollonia when his kinsman was slain. He was then about 18 years old, and had been sent to that city to improve himself in the study of Grecian literature. Upon the news of Caesar's death, notwithstanding the earnest dissuasions of all his friends, he resolved to return to Rome, to claim the inheritance, and revenge the death of his uncle. From the former professions of Antony, he expected to find him a warm assistant to his aims; and he doubted not, by his concurrence, to take signal vengeance on all who had a hand in the con-

spiracy. However, he was greatly disappointed. Antony, whose projects were all to aggrandize himself, gave him but a very cold reception, and, instead of granting him the fortune left him by the will, delayed the payment of it upon various pretences, hoping to check his ambition by limiting his circumstances. But Octavianus, instead of abating his claims, even sold his own patrimonial estate, to pay such legacies as Caesar had left, and particularly that to the people. By these means he gained a degree of popularity, which his enemies vainly laboured to diminish, and which in fact he had many other methods to procure. His conversation was elegant and insinuating, his face comely and graceful, and his affection to the late dictator so sincere, that every person was charmed either with his piety or his address. But what added still more to his interest was the name of Caesar, which he had assumed, and, in consequence of which, the former followers of his uncle now flocked in great numbers to him. All these he managed with such art, that Antony now began to conceive a violent jealousy for the talents of his young opponent, and secretly laboured to counteract all his designs. In fact, he did not want reason; for the army near Rome, that had long wished to see the conspirators punished, began to turn from him to his rival, whom they saw more sincerely bent on gratifying their desires. Antony having procured also the government of Hither Gaul from the people, two of his legions that he had brought home from his former government of Macedonia, went over to Octavianus, notwithstanding all his remonstrances to detain them. This produced, as usual, interviews, complaints, recriminations, and pretended reconciliations, which only tended to widen the difference; so that, at length, both sides prepared for war. Thus the state was divided into three distinct factions; that of Octavianus, who aimed at procuring Caesar's inheritance, and revenging his death; that of Antony, whose sole view was to obtain absolute power; and that of the conspirators, who endeavoured to restore the senate to its former authority.

Antony being raised by the people to his new government of Cisalpine Gaul, contrary to the inclinations of the senate, resolved to enter upon his province immediately, and oppose Brutus, who commanded a small body of troops there, while his army was yet entire. He accordingly left Rome, and marching thither, commanded Brutus to depart. Brutus, being unable to oppose him, retired with his forces; but being pursued by Antony, he was at last besieged in the city of Mutina; of which he sent word to the senate.

In the mean while, Octavianus, who by this time had raised a body of 10,000 men, returned to Rome; and being resolved, before he attempted to take vengeance on the conspirators, if possible to diminish the power of Antony, began by bringing over the senate to second his designs. In this he succeeded by the credit of Cicero, who had long hated Antony because he thought him the enemy of the state. Accordingly, by means of his eloquence, a decree was passed, ordering Antony to raise the siege of Mutina, to evacuate Cisalpine Gaul, and to await the further orders of the senate upon the banks of the Rubicon. Antony treated the order with contempt; and instead of

Rome.

227

A war breaks out between them.

Rome. obeying, began to show his displeasure at being hitherto so submissive. Nothing now therefore remained for the senate but to declare him an enemy to the state, and to send Octavianus, with the army he had raised, to curb his insolence. The latter was very ready to offer his army for this expedition, in order to revenge his own private injuries, before he undertook those of the public. The two consuls, Hirtius and Pansa, joined all their forces; and thus combined, they marched at the head of a numerous army, against Antony, into Cisalpine Gaul. After one or two ineffectual conflicts, both armies came to a general engagement; in which Antony was defeated, and compelled to fly to Lepidus, who commanded a body of forces in Further Gaul. This victory, however, which promised the senate so much success, produced effects very different from their expectations. The two consuls were mortally wounded; but Pansa, previous to his death, called Octavianus to his bed-side, and advised him to join with Antony, telling him, that the senate only desired to depress both, by opposing them to each other. The advice of the dying consul sunk deep on his spirits; so that from that time he only sought a pretext to break with them. Their giving the command of a party of his army to Decimus Brutus, and their denying him a triumph soon after, served to alienate his mind entirely from the senate, and made him resolve to join Antony and Lepidus. He was willing, however, to try the senate thoroughly, before he came to an open rupture; wherefore he sent to demand the consulship, which was refused him. He then thought himself obliged to keep no measures with that assembly, but privately sent to sound the inclinations of Antony and Lepidus, concerning a junction of forces, and found them as eager to assist as the senate was to oppose him. Antony was, in fact, the general of both armies, and Lepidus was only nominally so, his soldiers refusing to obey him upon the approach of the former. Wherefore, upon being assured of the assistance of Octavianus upon their arrival in Italy, they soon crossed the Alps with an army of 17 legions, breathing revenge against all who had opposed their designs.

The senate now began, too late, to perceive their error in disobliging Octavianus; and therefore gave him the consulship which they had so lately refused, and, to prevent his joining with Antony, flattered him with new honours, giving him a power superior to all law. The first use Octavianus made of his new authority was to procure a law for the condemnation of Brutus and Cassius; after which, he joined his forces with those of Antony and Lepidus.

228
They are reconciled, and divide the empire with Lepidus.

229
The second triumvirate.

The meeting of these three usurpers of their country's freedom was near Mutina, upon a little island of the river Panarus. Their mutual suspicions were the cause of their meeting in this place. Lepidus first entered, and, finding all things safe, made the signal for the other two to approach. Octavianus began the conference, by thanking Antony for his zeal in putting Decimus Brutus to death; who, being abandoned by his army, was taken as he was designing to escape into Macedonia, and beheaded by Antony's command. Their conference lasted for three days; and the result of it was, that the supreme authority should be lodged in their hands, under the title of the *triumvirate*, for the space of five years; that Antony should have

Gaul; Lepidus, Spain; and Octavianus, Africa, and the Mediterranean islands. As for Italy, and the eastern provinces, they were to remain in common, until their general enemy was entirely subdued. But the last article of their union was a dreadful one. It was agreed that all their enemies should be destroyed; of which each presented a list. In these were comprised not only the enemies, but the friends of the triumvirs. 230
rate, since the partisans of the one were often found among the opposers of the others. Thus Lepidus gave up his brother Paulus to the vengeance of his colleague; Antony permitted the proscription of his uncle Lucius; and Octavianus delivered up the great Cicero. The most sacred rights of nature were violated; 300 senators, and above 2000 knights, were included in this terrible proscription; their fortunes were confiscated, and their murderers enriched with the spoil. Rome soon felt the effects of this infernal union, and the horrid cruelties of Marius and Sylla were renewed. As many as could escape the cruelty of the triumvirs, fled thither into Macedonia to Brutus, or found refuge with young Pompey, who was now in Sicily, and covered the Mediterranean with his numerous navy. Their cruelties were not aimed at the men alone; but the softer sex were in danger of being marked as objects either of avarice or resentment. They made out a list of 1400 women of the best quality, and the richest in the city, who were ordered to give in an account of their fortunes, to be taxed in proportion. But this seemed so unpopular a measure, and was so firmly opposed by Hortensia, who spoke against it, that, instead of 1400 women, they were content to tax only 400. However, they made up the deficiency, by extending the tax upon men; near 100,000, as well citizens as strangers, were compelled to furnish supplies to the subversion of their country's freedom. At last, both the avarice and vengeance of the triumvirs seemed fully satisfied, and they went into the senate to declare that the proscription was at an end; and thus having deluged the city with blood, Octavianus and Antony, leaving Lepidus to defend Rome in their absence, marched with their army to oppose the conspirators, who were now at the head of a formidable army in Asia.

Brutus and Cassius, the principal of these, upon the death of Cæsar, being compelled to quit Rome, went 231
They are opposed by Brutus and Cassius.
into Greece, where they persuaded the Roman students at Athens to declare in the cause of freedom; then parting, the former raised a powerful army in Macedonia and the adjacent countries, while the latter went into Syria, where he soon became master of 12 legions, and reduced his opponent Dolabella to such straits as to kill himself. Both armies soon after joining at Smyrna, the sight of such a formidable force began to revive the declining spirits of the party, and to re-unite the two generals still more closely, between whom there had been some time before a slight misunderstanding. In short, having quitted Italy like distressed exiles, without having one single soldier or one town that owned their command, they now found themselves at the head of a flourishing army, furnished with all the necessaries for carrying on the war, and in a condition to support a contest where the empire of the world depended on the event. This success in raising levies was entirely owing to the justice, moderation,

deration, and great humanity of Brutus, who in every instance seemed studious of the happiness of his country.

It was in this flourishing state of their affairs that the conspirators had formed a resolution of going against Cleopatra, who, on her side, had made great preparations to assist their opponents. However, they were diverted from this purpose by an information that Octavianus and Antony were now upon their march, with 40 legions to oppose them. Brutus now, therefore, moved to have their army pass over into Greece and Macedonia, and there meet the enemy; but Cassius so far prevailed as to have the Rhodians and Lycians first reduced, who had refused their usual contribution. This expedition was immediately put in execution, and extraordinary contributions were raised by that means, the Rhodians having scarce any thing left but their lives*. The Lycians suffered still more severely; for having shut themselves up in the city of Xanthus, they defended the place against Brutus with such fury, that neither his art nor intreaties could prevail upon them to surrender. At length, the town being set on fire, by their attempting to burn the works of the Romans, Brutus, instead of laying hold on this opportunity to storm the place, made every effort to preserve it, intreating his soldiers to try all means of extinguishing the fire: but the desperate phrenzy of the citizens was not to be mollified. Far from thinking themselves obliged to their generous enemy for the efforts which were made to save them, they resolved to perish in the flames. Wherefore, instead of extinguishing, they did all in their power to augment the fire, by throwing in wood, dry reeds, and all kinds of fuel. Nothing could exceed the distress of Brutus upon seeing the townsmen thus resolutely bent on destroying themselves: he rode about the fortifications, stretching out his hands to the Xanthians, and conjuring them to have pity on themselves and their city; but, insensible to his expostulations, they rushed into the flames with desperate obstinacy, and the whole soon became an heap of undistinguishable ruin. At this horrid spectacle, Brutus offered a reward to every soldier who would bring him a Lycian alive. The number of those whom it was possible to save from their own fury amounted to no more than 150.

Brutus and Cassius met once more at Sardis, where, after the usual ceremonies were passed between them, they resolved to have a private conference together, when, after much altercation, they were at last perfectly reconciled. After which, night coming on, Cassius invited Brutus and his friends to an entertainment. Upon retiring home, it was that Brutus, as Plutarch tells the story, saw a spectre in his tent. It was in the dead of the night, when the whole camp was perfectly quiet, that Brutus was employed in reading by a lamp that was just expiring. On a sudden he thought he heard a noise as if somebody entered; and looking towards the door, he perceived it open. A gigantic figure, with a frightful aspect, stood before him, and continued to gaze upon him with silent severity. At last Brutus had courage to speak to it: "Art thou a demon or a mortal man? and why comest thou to me?" "Brutus," replied the phantom, "I am thy evil genius, thou shalt see me again at Philippi." "Well then," answered Brutus, without being discomposed,

"we shall meet again." Upon which the phantom vanished; and Brutus calling to his servants, asked if they had seen any thing; to which replying in the negative, he again resumed his studies. But as he was struck with so strange an occurrence, he mentioned it the next day to Cassius, who, being an Epicurean, ascribed it to the effect of imagination too much exercised by vigilance and anxiety. Brutus appeared satisfied with this solution of his late terrors; and, as Antony and Octavianus were now advanced into Macedonia, they soon after passed over into Thrace, and advanced to the city of Philippi, near which the forces of the triumvirs were posted.

A battle soon ensued; in which the republicans were defeated, and Cassius killed, as is related in the article PHILIPPI.

The first care of Brutus, when he became the sole general, was to assemble the dispersed troops of Cassius, and animate them with fresh hopes of victory. As they had lost all they possessed by the plundering of their camp, he promised them 2000 denarii each man to make up their losses. This once more inspired them with new ardour; they admired the liberality of their general, and with loud shouts proclaimed his former intrepidity. Still, however, he had not confidence sufficient to face the adversary, who offered him battle the ensuing day. His aim was to starve his enemies, who were in extreme want of provisions, their fleet having been lately defeated. But his single opinion was over-ruled by the rest of his army, who now grew every day more confident of their strength, and more arrogant to their new general. He was, therefore, at last, after a respite of 20 days, obliged to comply with their solicitations to try the fate of the battle. Both armies being drawn out, they remained a long while opposite to each other without offering to engage. It is said that he himself had lost much of his natural ardour by having again seen the spectre the night preceding: however, he encouraged his men as much as possible, and gave the signal for battle within three hours of sun-set. Fortune again declared against him; and the two triumviri expressly ordered by no means to suffer the general to escape, for fear he should renew the war. Thus the whole body of the enemy seemed chiefly intent on Brutus alone, and his capture seemed inevitable. In this deplorable exigence, Lucilius his friend resolved, by his own death, to effect the general's delivery. Upon perceiving a body of Thracian horse closely pursuing Brutus, and just upon the point of taking him, he boldly threw himself in their way, telling them that he was Brutus. The Thracians, overjoyed with so great a prize, immediately dispatched some of their companions, with the news of their success, to the army. Upon which, the ardour of the pursuit now abating, Antony marched out to meet his prisoner; some silently deploring the fate of so virtuous a man; others reproaching that mean desire of life for which he consented to undergo captivity. Antony now seeing the Thracians approach, began to prepare himself for the interview; but the faithful Lucilius, advancing with a cheerful air, owned the deceit that he had put upon him: on which the triumvir, struck with so much fidelity, pardoned him upon the spot; and from that time forward loaded him with benefits, and honoured him with his friendship.

Rome.

233

The re-

publicans

As defeated,

234

They are

second

time.

Rome.

235
Brutus
kills him-
self.

In the mean time Brutus, with a small number of friends, passed over a rivulet, and, night coming on, sat down under a rock which concealed him from the pursuit of the enemy. After taking breath for a little time, he sent out one Statilius to give him some information of those that remained; but he never returned, being killed by a party of the enemy's horse. Brutus judging very rightly of his fate, now resolved to die likewise, and spoke to those who stood round him to lend him their last sad assistance. None of them, however, would render him so melancholy a piece of service. At last one Strato, averting his head, presented the sword's point to Brutus; who threw himself upon it, and immediately expired.

From the moment of Brutus's death the triumviri began to act as sovereigns, and to divide the Roman dominions between them, as theirs by right of conquest. However, though there were apparently three who thus participated all the power, yet, in fact, only two were actually possessed of it; since Lepidus was at first admitted merely to curb the mutual jealousy of Antony and Octavianus, and was possessed neither of interest in the army nor authority among the people. Their first care was to punish those whom they had formerly marked for vengeance. The head of Brutus was sent to Rome to be thrown at the foot of Cæsar's statue. His ashes, however, were sent to his wife Porcia, Cato's daughter, who afterwards killed herself by swallowing burning coals. It is observed, that of all those who had a hand in the death of Cæsar, not one died a natural death.

236
Antony's
ex-rava-
gance.

The power of the triumviri being thus established upon the ruins of the commonwealth, Antony went into Greece, and spent some time at Athens, conversing among the philosophers, and assisting at their disputes in person. From thence he passed over into Asia, where all the monarchs of the east, who acknowledged the Roman power, came to pay him their obedience. In this manner he proceeded from kingdom to kingdom, attended by a crowd of sovereigns, exacting contributions, distributing favours, and giving away crowns with capricious insolence. He presented the kingdom of Cappadocia to Syfenes, in prejudice of Ariarathes, only because he found pleasure in the beauty of Glaphyra, the mother of the former. He settled Herod in the kingdom of Judea, and supported him against every opposer. But among all the sovereigns of the east who shared his favours, none had so large a part as Cleopatra, the celebrated queen of Egypt.

237
Has an in-
terview
with Cleo-
patra.

It happened that Serapion, her governor in the island of Cyprus, had formerly furnished some succours to the conspirators; and it was thought proper that she should answer for his conduct on that occasion. Accordingly, having received orders from Antony to come and clear herself of this imputation of infidelity, she readily complied, equally conscious of the goodness of her cause and the power of her beauty. She had already experienced the force of her charms upon Cæsar and Pompey's eldest son; and the addition of a few years since that time had not impaired their lustre. Antony was now in Tarsus, a city of Cilicia, when Cleopatra resolved to attend his court in person. She sailed down the river Cydnus, at the mouth of which the city stood, with the most sumptuous pageantry. Her galley was covered with gold; the sails were of purple, large, and floating in the wind. The oars of

silver kept tune to the sound of flutes and cymbals. She herself lay reclined on a couch spangled with stars of gold, and with such ornaments as poets and painters had usually ascribed to Venus. On each side were boys like Cupids, who fanned her by turns; while the most beautiful nymphs, dressed like Nereids and Graces, were placed at proper distances around her. Upon the banks of the river were kept burning the most exquisite perfumes, while an infinite number of people gazed upon the sight. Antony was captivated with her beauty; and, leaving all his business to satisfy his passion, shortly after followed her into Egypt.

While he thus remained idle, Octavianus, who took upon him to lead back the veteran troops and settle them in Italy, was assiduously employed in providing for their subsistence. He had promised them lands at home, as a recompense for their past services; but they could not receive new grants, without turning out the former inhabitants. In consequence of this, multitudes of women, with children in their arms, whose tender years and innocence excited universal compassion, daily filled the temples and the streets with their distresses. Numbers of husbandmen and shepherds came to deprecate the conqueror's intention, or to obtain an habitation in some other part of the world. Amongst this number was Virgil the poet, who in an humble manner begged permission to retain his patrimonial farm: Virgil obtained his request; but the rest of his countrymen, of Mantua and Cremona, were turned out without mercy.

Italy and Rome now felt the most extreme miseries; the insolent soldiers plundered at will; while Sextus sustained Pompey, being master of the sea, cut off all foreign by the communication, and prevented the people's receiving their usual supplies of corn. To these mischiefs were added the commencement of another civil war. Fulvia, the wife of Antony, who had been left behind him at Rome, had felt for some time all the rage of jealousy, and resolved to try every method of bringing back her husband from the arms of Cleopatra. She considered a breach with Octavianus as the only probable means of rousing him from his lethargy; and accordingly, with the assistance of Lucius her brother-in-law, who was then consul, and entirely devoted to her interest, she began to sow the seeds of dissension. The pretext was, that Antony should have a share in the distribution of lands as well as Octavianus. This produced some negotiations between them; Octavianus offered to make the veterans themselves umpires in the dispute. Lucius refused to acquiesce; and being at the head of more than six legions, mostly composed of such as had been dispossessed of their lands, he resolved to compel Octavianus to accept of whatever terms he should offer. Thus a new war was excited between Octavianus and Antony; or, at least, the generals of the latter assumed the sanction of his name. Octavianus, however, proved victorious: Lucius was hemmed in between two armies, and constrained to retreat to Perugia, a city of Etruria, where he was closely besieged by the opposite party. He made many desperate sallies, and Fulvia did all in her power to relieve him, but without success. He was at last, therefore, reduced to such extremity by famine, that he came out in person and delivered himself up to the mercy of the conqueror. Octavianus received him very honourably, and generously pardoned him and all his followers. Thus having concluded

cluded the war in a few months, he returned in triumph to Rome.

Antony, who, during this interval, was revelling in all the studied luxuries procured him by his insidious mistress, having heard of his brother's overthrow, and his wife's being compelled to leave Italy, was resolved to oppose Octavianus without delay. He accordingly sailed at the head of a considerable fleet from Alexandria to Tyre; from thence to Cyprus and Rhodes, and had an interview with Fulvia his wife at Athens. He much blamed her for occasioning the late disorders, testified the utmost contempt for her person, and, leaving her upon her death-bed at Sydon, hastened into Italy to fight Octavianus. They both met at Brundisium; and it was now thought that the flames of a civil war were going to blaze out once more. The forces of Antony were numerous, but mostly newly raised; however, he was assisted by Sextus Pompeius, who in these oppositions of interests was daily coming into power. Octavianus was at the head of those veterans who had always been irresistible, but who seemed no way disposed to fight against Antony their former general. A negotiation was therefore proposed; and a reconciliation was effected. All offences and affronts were mutually forgiven; and to cement the union, a marriage was concluded between Antony and Octavia, the sister of Octavianus. A new division of the Roman empire was made between them; Octavianus was to have the command of the west, Antony of the east, while Lepidus was obliged to content himself with the provinces in Africa. As for Sextus Pompeius, he was permitted to retain all the islands he had already possessed, together with Peloponnesus: he was also granted the privilege of demanding the consulship in his absence, and of discharging that office by any of his friends. It was likewise stipulated to leave the sea open, and pay the people what corn was due out of Sicily. Thus a general peace was concluded, to the great satisfaction of the people; who now expected a cessation from all their calamities.

This calm seemed to continue for some time: Antony led his forces against the Parthians, over whom his lieutenant, Ventidius, had gained great advantages. Octavianus drew the greatest part of his army into Gaul, where there were some disturbances; and Pompey went to secure his newly ceded province to his interest. It was on this quarter that fresh motives were given for renewing the war. Antony, who was obliged by treaty to quit Peloponnesus, refused to evacuate it till Pompey had satisfied him for such debts as were due to him from the inhabitants. This Pompey would by no means comply with; but immediately fitted out a new fleet, and renewed his former enterprises, by cutting off such corn and provisions as were consigned to Italy. Thus the grievances of the poor were again renewed; and the people began to complain, that instead of three tyrants they were now oppressed by four.

In this exigence, Octavianus, who had long meditated the best means of diminishing the number, resolved to begin by getting rid of Pompey, who kept the state in continual alarms. He was master of two fleets; one of which he had caused to be built at Ravenna; and another which Menodorus, who revolted from Pompey, brought to his aid. His first attempt was to invade Sicily; but being overpowered in his passage by

Pompey, and afterwards shattered in a storm; he was obliged to defer his designs to the ensuing year. During this interval he was reinforced by a fleet of 120 ships, given him by Antony, with which he resolved once more to invade Sicily on three several quarters. But fortune seemed still determined to oppose him. He was a second time disabled and shattered by a storm: which so raised the vanity of Pompey, that he began to style himself the *son of Neptune*. However, Octavianus was not to be intimidated by any disgraces; for having shortly refitted his navy, and recruited his forces, he gave the command of both to Agrippa, his faithful friend and associate in war. Agrippa proved himself worthy of the trust reposed in him: he began his operations by a victory over Pompey; and, though he was shortly after worsted himself, he soon after gave his adversary a complete and final overthrow. Thus undone, Pompey resolved to fly to Antony, from whom he expected refuge, as he had formerly obliged that triumvir by giving protection to his mother. However, he tried once more, at the head of a small body of men, to make himself independent, and even surprised Antony's officers who had been sent to accept of his submissions. Nevertheless, he was at last abandoned by his soldiers, and delivered up to Titus, Antony's lieutenant, who shortly after caused him to be slain.

The death of this general removed one very powerful obstacle to the ambition of Octavianus, and he resolved to take the earliest opportunity to get rid of the rest of his associates. An offence was soon furnished by Lepidus, that served as a sufficient pretext for depriving him of his share in the triumvirate. Being now at the head of 22 legions, with a strong body of cavalry, he idly supposed that his present power was more than an equivalent to the popularity of Octavianus. He therefore resolved upon adding Sicily, where he then was, to his province; pretending a right, as having first invaded it. His colleague sent to expostulate upon these proceedings; but Lepidus fiercely replied, 'that he was determined to have his share in the administration, and would no longer submit to let one alone possess all the authority.' Octavianus was previously informed of the disposition of Lepidus's soldiers; for he had, by his secret intrigues and largesses, entirely attached them to himself. Wherefore, without further delay, he with great boldness went alone to the camp of Lepidus, and with no other assistance than his private bounties, and the authority he had gained by his former victories, he resolved to depose his rival. The soldiers thronged round him with the most dutiful alacrity, while Lepidus hastened to prevent their defection. But Octavianus, though he received a wound from one of the centurions, went with great presence of mind to the place where the military ensigns were planted, and, flourishing one of them in the air, all the legionary soldiers ran in crowds and saluted him as their general. Lepidus being thus abandoned by his men, divested himself of all the marks of his authority, which he could no longer keep, and submissively threw himself and banished him to Circeum.

Octavianus was received upon his return to Rome with universal joy; the senators met him at the gates, and

Rome.

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Sextus Pompeius defeated and taken prisoner.

241

Lepidus defeated and banished.

Rome.
242
Antony's
imprudent
conduct.

See
Parthia.

and conducted him to the capitol: the people followed, crowned with garlands of flowers; and after having returned thanks to the gods, waited upon him to his palace. There remained now but one obstacle to his ambition, which was Antony, whom he resolved to remove, and for that purpose began to render his character as contemptible as he possibly could at Rome. In fact, Antony's conduct did not a little contribute to promote the endeavours of his ambitious partner in the state. He had marched against the Parthians with a prodigious army; but was forced to return with the loss of the fourth part of his forces, and all his baggage*. This extremely diminished his reputation; but his making a triumphal entry into Alexandria soon after, entirely disgusted the citizens of Rome. However, Antony seemed quite regardless of their resentment: totally disregarding the business of the state, he spent whole days and nights in the company of Cleopatra, who studied every art to increase his passion, and vary his entertainments. Not contented with sharing in her company all the delights which Egypt could afford, Antony was resolved to enlarge his sphere of luxury, by granting her many of those kingdoms which belonged to the Roman empire. He gave her all Phœnicia, Celo-Syria, and Cyprus; with a great part of Cilicia, Arabia, and Judea; gifts which he had no right to bestow, but which he pretended to grant in imitation of Hercules. This complication of vice and folly at length totally exasperated the Romans; and Octavianus, willing to take advantage of their resentment, took care to exaggerate all his defects. At length, when he found the people sufficiently irritated against him, he resolved to send Octavia, who was then at Rome, to Antony, as if with a view of reclaiming her husband; but, in fact, to furnish a sufficient pretext of declaring war against him, as he knew she would be dismissed with contempt.

243
Divorces
Octavia,
and mar-
ries Cleo-
patra.

Antony was now in the city of Leucopolis, revelling with his insidious paramour, when he heard that Octavia was at Athens, upon her journey to visit him. This was very unwelcome news to him as well as to Cleopatra; who, fearing the charms of her rival, endeavoured to convince Antony of the strength of her passion. He frequently caught her in tears, which she seemed as if willing to hide; and often intreated her to tell him the cause, which she seemed willing to suppress. These artifices, together with the ceaseless flattery and importunity of her creatures, prevailed so much upon Antony's weakness, that he commanded Octavia to return home without seeing her, and attached himself still more closely to Cleopatra than before. His ridiculous passion now began to have no bounds. He resolved to own her for his wife, and entirely to repudiate Octavia. He accordingly assembled the people of Alexandria in the public theatre, where was raised an alcove of silver, under which were placed two thrones of gold, one for himself and the other for Cleopatra. There he seated himself, dressed like Bacchus, while Cleopatra sat beside him clothed in the ornaments and attributes of Isis, the principal deity of the Egyptians. On that occasion he declared her queen of all the countries which he had already bestowed upon her; while he associated Cæsario, her son by Cæsar, as her partner in the government. To the two children which he had by her himself he gave the title of *king of kings*, with very extensive do-

minions; and, to crown his absurdities, he sent a minute account of his proceedings to the two consuls at Rome. It was now necessary to act up to his imaginary dignity; new luxuries and pageantries were now therefore studied, and new marks of profusion found out: not less than 60,000*l.* of our money were lavished upon one single entertainment; it is said, upon this occasion, that Cleopatra dissolved a pearl of great value in vinegar, and drank it off. But we are told of one circumstance that might well repress their delights, and teach mankind to relish the beverage of virtue, however simple, above their greatest luxuries. He was suspicious of being poisoned in every meal; he feared Cleopatra, whom he so much loved, and would eat nothing without having it previously tasted by one of his attendants.

In the mean time Octavianus had now a sufficient pretext for declaring war; and informed the senate of his intentions. However, he deferred the execution of his design for a while, being then employed in quelling an insurrection of the Illyrians. The following year was chiefly taken up in preparations against Antony, who, perceiving his design, remonstrated to the senate, that he had many causes of complaint against his colleague, who had seized upon Sicily without offering him a share; alleging that he had also dispossessed Lepidus, and kept to himself the province he had commanded; and that he had divided all Italy among his own soldiers, leaving nothing to recompense those in Asia. To this complaint Octavianus was contented to make a sarcastic answer; implying, that it was absurd to complain of his distribution of a few trifling districts in Italy, when Antony having conquered Parthia, he might now reward his soldiers with cities and provinces. The sarcasm upon Antony's misfortunes in Parthia so provoked him, that he ordered Canidius, who commanded his army, to march without intermission into Europe; while he and Cleopatra followed to Samos, in order to prepare for carrying on the war with vigour. When arrived there, it was ridiculous enough to behold the odd mixture of preparations for pleasure and for war. On one side all the kings and princes from Europe to the Euxine sea had orders to send him thither supplies both of men, provisions, and arms; on the other side, all the comedians, dancers, buffoons, and musicians of Greece, were ordered to attend him. Thus, frequently, when a ship was thought to arrive laden with soldiers, arms, and ammunition, it was found only filled with players and theatrical machinery. When news was expected of the approach of an army, messengers only arrived with tidings of a fresh quantity of venison. The kings who attended him endeavoured to gain his favour more by their entertainments than their warlike preparations; the provinces strove rather to please him by sacrificing to his divinity, than by their alacrity in his defence; so that some were heard to say, "What rejoicings would not this man make for a victory, when he thus triumphs at the eve of a dangerous war!" In short, his best friends now began to forsake his interests.

His delay at Samos, and afterwards at Athens, where he carried Cleopatra to receive new honours, was extremely favourable to the arms of Octavianus. This general was at first scarcely in a disposition to oppose him, had he gone into Italy; but he soon found time

one. to put himself in a condition for carrying on the war, and shortly after declared it against him in form. All Antony's followers were invited over to join him, with great promises of rewards: but they were not declared enemies, partly to prevent their growing desperate, and partly to give a show of moderation to his own party. At length both found themselves in readiness to begin the war, and their armies were answerable to the empire they contended for. The one was followed by all the forces of the east; the other drew all the strength of the west to support his pretensions. Antony's force composed a body of 100,000 foot and 12,000 horse; while his fleet amounted to 500 ships of war. The army of Octavianus mustered but 80,000 foot, but equalled his adversary's in his number of cavalry: his fleet was but half as numerous as Antony's; however, his ships were better built, and manned with better soldiers.

245
only
eated at
tium.
The great decisive engagement, which was a naval one, was fought near Actium, a city of Epirus, at the entrance of the gulph of Ambracia. Antony ranged his ships before the mouth of the gulph; and Octavianus drew up his fleet in opposition. Neither general assumed any fixed station to command in; but went about from ship to ship wherever his presence was necessary. In the mean time, the two land armies, on opposite sides of the gulph, were drawn up, only as spectators of the engagement; and encouraged the fleets by their shouts to engage. The battle began on both sides with great ardour, and after a manner not practised upon former occasions. The prows of their vessels were armed with brazen points; and with these they drove furiously against each other. In this conflict the ships of Antony came with greater force, but those of Octavianus avoided the shock with greater dexterity. On Antony's side, the sterns of the ships were raised in form of a tower; from whence they threw arrows from machines for that purpose. Those of Octavianus made use of long poles hooked with iron, and fire-pots. They fought in this manner for some time with equal animosity; nor was there any advantage on either side, except a small appearance of disorder in the centre of Antony's fleet. But all of a sudden Cleopatra determined the fortune of the day. She was seen flying from the engagement attended by 60 sail; struck, perhaps, with the terrors natural to her sex: but what increased the general amazement was, to behold Antony himself following soon after, and leaving his fleet at the mercy of the conquerors. The engagement, notwithstanding, continued with great obstinacy till five in the evening; when Antony's forces, partly constrained by the conduct of Agrippa, and partly persuaded by the promises of Octavianus, submitted to the conqueror. The land-forces soon after followed the example of the navy; and all yielded to the conqueror without striking a blow the fourth day after the battle.

When Cleopatra fled, Antony pursued her in a five-oared galley; and coming along-side of her ship entered, without seeing or being seen by her. She was in the stern, and he went to the prow, where he remained for some time silent, holding his head between his hands. In this manner he continued three whole days; during which, either through indignation or shame, he neither saw nor spoke to Cleopatra. At last, when they were arrived at the promontory of Tenarus, the

queen's female attendants reconciled them, and every thing went on as before. Still, however, he had the consolation to suppose his army continued faithful to him; and accordingly dispatched orders to his lieutenant Canidius to conduct it into Asia. However, he was soon undeceived when he arrived in Africa, where he was informed of their submission to his rival. This account so transported him with rage, that he was hardly prevented from killing himself; but at length, at the entreaty of his friends, he returned to Alexandria, in a very different situation from that in which he had left it some time before. Cleopatra, however, seemed to retain that fortitude in her misfortunes which had utterly abandoned her admirer. Having amassed considerable riches by means of confiscation and other acts of violence, she formed a very singular and unheard of project; this was to convey her whole fleet over the isthmus of Suez into the Red Sea, and thereby save herself in another region beyond the reach of Rome, with all her treasures. Some of her vessels were actually transported thither, pursuant to her orders; but the Arabians having burnt them, and Antony dissuading her from the design, she abandoned it for the more improbable scheme of defending Egypt against the conqueror. She omitted nothing in her power to put his advice in practice, and made all kinds of preparations for war; at least hoping thereby to obtain better terms from Octavianus. In fact, she had always loved Antony's fortunes rather than his person; and if she could have fallen upon any method of saving herself, though even at his expence, there is no doubt but she would have embraced it with gladness. She even still had some hopes from the power of her charms, though she was arrived almost at the age of 40; and was desirous of trying upon Octavianus those arts which had been so successful with the greatest men of Rome. Thus, in three embassies which were sent one after another from Antony to his rival in Asia, the queen had always her secret agents, charged with particular proposals in her name. Antony desired no more than that his life might be spared, and to have the liberty of passing the remainder of his days in obscurity. To these proposals Octavianus made no reply. Cleopatra sent him also public proposals in favour of her children; but at the same time privately resigned him her crown, with all the ensigns of royalty. To the queen's public proposal no answer was given; to her private offer he replied, by giving her assurances of his favour in case, she sent away Antony or put him to death. These negotiations were not so private but they came to the knowledge of Antony, whose jealousy and rage was now heightened by every concurrence. He built a small solitary house upon a mole in the sea; and there he passed his time, shunning all commerce with mankind, and professing to imitate Timon the man-hater. However, his furious jealousy drove him even from this retreat into society; for hearing that Cleopatra had many secret conferences with one Thyrsus, an emissary from Octavianus, he seized upon him, and having ordered him to be cruelly scourged, he sent him back to his patron. At the same time he sent letters by him, importing, that he had chastised Thyrsus for insulting a man in his misfortunes; but withal he gave his rival permission to avenge himself, by scourging Hiparchus, Antony's freedman, in the same manner. The revenge, in this case, would have

Rome.

246
He resolves
to defend
Egypt
against the
conqueror.

Rome.

been highly pleasing to Antony, as Hiparchus had left him to join the fortunes of his more successful rival.

Meanwhile, the operations of the war were carried vigorously forward, and Egypt was once more the theatre of the contending armies of Rome. Gallus, the lieutenant of Octavianus, took Paretonium, which opened the whole country to his incursions. On the other side, Antony, who had still considerable forces by sea and land, wanted to take that important place from the enemy. He therefore marched towards it, flattering himself, that as soon as he should show himself to the legions which he had once commanded, their affection for their ancient general would revive. He approached, therefore, and exhorted them to remember their former vows of fidelity. Gallus, however, ordered all the trumpets to sound, in order to hinder Antony from being heard, so that he was obliged to retire.

247
Pelusium
given up to
Octavianus.

Octavianus himself was in the mean time advancing with another army before Pelusium, which, by its strong situation, might have retarded his progress for some time. But the governor of the city, either wanting courage to defend it, or previously instructed by Cleopatra to give it up, permitted him to take possession of the place; so that Octavianus had now no obstacle in his way to Alexandria, whither he marched with all expedition. Antony, upon his arrival, sallied out to oppose him, fighting with great desperation, and putting the enemy's cavalry to flight. This slight advantage once more revived his declining hopes; and, being naturally vain, he re-entered Alexandria in triumph. Then going, all armed as he was, to the palace, he embraced Cleopatra, and presented her a soldier who had distinguished himself in the late engagement. The queen rewarded him very magnificently; presenting him with an head-piece and breast-plate of gold. With these, however, the soldier went off the next night to the other army. Antony could not bear this defection without fresh indignation; he resolved, therefore, to make a bold expiring effort by sea and land, but previously offered to fight his adversary in single combat. Octavianus too well knew the inequality of their situations to comply with this forlorn offer; he only, therefore, coolly replied, that Antony had ways enough to die besides single combat.

248
Antony de-
serted by his
fleet.

The evening before the day appointed for the last desperate attempt, he ordered a grand entertainment to be prepared. At day-break he posted the few troops he had remaining upon a rising ground near the city: from whence he sent orders to his galleys to engage the enemy. There he waited to be a spectator of the combat; and, at first, he had the satisfaction to see them advance in good order; but his approbation was soon turned into rage, when he saw his ships only saluting those of Octavianus, and both fleets uniting together, and sailing back into the harbour. At the very same time his cavalry deserted him. He tried, however, to lead on his infantry; which were easily vanquished, and he himself compelled to return into the town. His anger was now ungovernable; he could not help crying out aloud as he passed, that he was betrayed by Cleopatra, and delivered by her to those who, for her sake alone, were his enemies. In these suspicions he was not deceived; for it was by secret orders from the queen that the fleet had passed over to the enemy.

Rome.

Cleopatra had, for a long while, dreaded the effects of Antony's jealousy; and had, some time before, prepared a method of obviating any sudden sallies it might produce. Near the temple of Isis she had erected a building, which was seemingly designed for a sepulchre. Hither she removed all her treasure and most valuable effects, covering them over with torches, faggots, and other combustible matter. This sepulchre she designed to answer a double purpose; as well to screen her from the sudden resentments of Antony, as to make Octavianus believe that she would burn all her treasures in case he refused her proper terms of capitulation. Here, therefore, she retired from Antony's present fury; shutting the gates, which were fortified with bolts and bars of iron: but in the mean time gave orders that a report should be spread of her death.—This news, which soon reached Antony, recalled all his former love and tenderness. He now lamented her death with the same violence he had but a few minutes before seemed to desire it; and called one of his freedmen, named *Eros*, whom he had engaged by oath to kill him whenever fortune should drive him to this last resource. *Eros* being now commanded to perform his promise, this faithful follower drew the sword, as if going to execute his orders; but turning his face, plunged it into his own bosom, and died at his master's feet. Antony for a while hung over his faithful servant, and, commending his fidelity, took up the sword, with which stabbing himself in the belly, he fell backward upon a little couch. Though the wound was mortal, yet the blood stopping he recovered his spirits, and earnestly conjured those who were come into the room to put an end to his life; but they all fled, being seized with fright and horror. He therefore continued in agonies for some time; till he was informed by one of the queen's secretaries that his mistress was still alive. He then earnestly desired to be carried to the place where she was. They accordingly brought him to the gate of the sepulchre; but Cleopatra, who would not permit it to be opened, appeared at the window, and threw down cords in order to pull him up. In this manner, assisted by her two female attendants, she raised him all bloody from the ground; and while yet suspended in the air, he continued stretching out his hands to encourage her. Cleopatra and her maids had only just strength sufficient to raise him; and at last, with much straining, they effected their purpose, and carried him to a couch, on which they gently laid him. Here she gave way to her sorrow, tearing her clothes, beating her breast, and kissing the wound of which he was dying. She called upon him as her lord, her husband, her emperor, and seemed to have forgot her own distresses in the greatness of his sufferings. Antony entreated her to moderate the transports of her grief, and asked for some wine. After he had drank, he entreated Cleopatra to endeavour to preserve her life, if she could do it with honour; and recommended Proculus, a friend of Octavianus, as one she might rely on to be her intercessor. Just as he had done speaking, he expired; and Proculus made his appearance by command of Octavianus, who had been informed of Antony's desperate conduct. He was sent to try all means of getting Cleopatra into his power; his master having a double motive for his solicitude on this occasion; one, to prevent her destroying the treasures she had taken with her into the tomb; the other,

249
Stabs him-
self with
sword.

250
He dies.

Rome.

251
Cleopatra
ten.

to preserve her person as an ornament to grace his triumph. Cleopatra, however, was upon her guard, and would not confer with Proculus, except through the gate, which was well secured. In the mean time, while he designedly drew out the conference to some length, and had given Gallus, one of his fellow-soldiers, directions to carry on the conversation in his absence, he entered with two more by the window at which Antony had been drawn up. As soon as he was entered, he ran down to the gate; and one of the women crying out, that they were taken alive, Cleopatra, perceiving what had happened, drew a poniard, and attempted to stab herself; but Proculus prevented the blow, and gently remonstrated that she was cruel in refusing so good a prince as his master was the pleasure of displaying his clemency. He then forced the poniard out of her hand, and examined her clothes to be certain she had no poison about her. Thus leaving every thing secured, he went to acquaint his master with his proceedings.

Octavianus was extremely pleased at finding her in his power: he sent Epaphroditus to bring her to his palace, and to watch her with the utmost circumspection. He was likewise ordered to use her, in every respect, with that deference and submission which were due to her rank, and to do every thing in his power to render her captivity agreeable. She was permitted to have the honour of granting Antony the rites of burial, and furnished with every thing she desired, that was becoming his dignity to receive, or her love to offer. Yet still she languished under her new confinement. Her excessive sorrow, her many losses, and the blows she had given her bosom, produced a fever which she seemed willing to increase. She resolved to abstain from taking any nourishment, under the pretence of a regimen necessary for her disorder; but Octavianus being made acquainted with the real motive by her physician, began to threaten her with regard to her children, in case she persisted. This was the only punishment that could now affect her; she allowed herself to be treated as they thought proper, and received whatever was prescribed for her recovery.

In the mean time Octavianus made his entry into Alexandria; taking care to mitigate the fears of the inhabitants, by conversing familiarly as he went along with Areus, a philosopher, and a native of the place. The citizens, however, trembled at his approach; and when he placed himself upon the tribunal, they prostrated themselves, with their faces to the ground, before him, like criminals who waited the sentence of their execution. Octavianus presently ordered them to rise; telling them, that three motives induced him to pardon them: His respect for Alexander, who was the founder of their city; his admiration of its beauty; and his friendship for Areus, their fellow-citizen. Two only of particular note were put to death upon this occasion; Antony's eldest son Antyllus, and Cæsario, the son of Julius Cæsar; both betrayed into his hands by their respective tutors, who themselves suffered for their perfidy shortly after. As for the rest of Cleopatra's children, he treated them with great gentleness, leaving them to the care of those who were entrusted with their education, who had orders to provide them with every thing suitable to their birth. When she was recovered from her late indisposition, he came to visit her in person.—Cleopatra had been preparing for this interview, and

made use of every method she could think of to propitiate the conqueror, and to gain his affection; but in vain. However, at his departure, Octavianus imagined that he had reconciled her to life, and to the indignity of being shown in the intended triumph, which he was preparing for on his return to Rome: but in this he was deceived. Cleopatra, all this time, had kept a correspondence with Dolabella, a young Roman of high birth, in the camp of Octavianus; who, perhaps, from compassion, or stronger motives, was interested in the misfortunes of that princess. From him she learnt the intentions of Octavianus, and that he was determined to send her off in three days, together with her children, to Rome. She now therefore determined upon dying; but previously intreated permission to pay her oblations at Antony's tomb. This request being granted her, she was carried with her two female attendants to the stately monument where he was laid. There she threw herself upon his coffin, bewailed her captivity, and renewed her protestations not to survive him. She then crowned the tomb with garlands of flowers; and having kissed the coffin a thousand times, she returned home to execute her fatal resolution. Having bathed, and ordered a sumptuous banquet, she attired herself in the most splendid manner. She then feasted as usual; and soon after ordered all but her two attendants, Charmion and Iras, to leave the room. Then, having previously ordered an asp to be secretly conveyed to her in a basket of fruit, she sent a letter to Octavianus, informing him of her fatal purpose, and desiring to be buried in the same tomb with Antony. Octavianus, upon receiving this letter, instantly dispatched messengers to prevent her, but they arrived too late. Upon entering the chamber, they beheld Cleopatra lying dead upon a gilded couch, arrayed in her royal robes. Near her, Iras, one of her faithful attendants, was stretched lifeless at the feet of her mistress: and Charmion herself, almost expiring, was settling the diadem upon Cleopatra's head. She died at the age of thirty-nine, after having reigned twenty-two years. Her death put an end to the monarchy in Egypt, which had flourished there from time immemorial.

Octavianus seemed much troubled at Cleopatra's death, as it deprived him of a principal ornament in his intended triumph. However, the manner of it a good deal exalted her character among the Romans, with whom suicide was considered as a virtue. Her dying request was complied with, her body being laid by Antony's, and a magnificent funeral prepared for her and her two faithful attendants.

After having settled the affairs of Egypt, he left Alexandria in the beginning of September, in the year of Rome 720, with a design to return through Syria, Asia Minor, and Greece, to Italy. On his arrival at Antioch, he found there Tiridates, who had been raised to the throne of Parthia in opposition to Phraates, and likewise ambassadors from Phraates, who were all come on the same errand; to wit, to solicit the assistance of the Romans against each other. Octavianus gave a friendly answer both to Tiridates and the ambassadors of Phraates, without intending to help either; but rather with a design to animate the one against the other, and by that means to weaken both, so far as to render the Parthian name no longer formidable to Rome. After this, having appointed Messala

Rome.

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Her death.

Rome. Corvinus governor of Syria, he marched into the province of Asia, properly so called, and there took up his winter quarters. He spent the whole winter in settling the affairs of the several provinces of Asia Minor and the adjacent islands; and early in the spring passed into Greece, whence he set out for Rome, which he entered in the month Sextilis, afterwards called *August*, in three triumphs, which were celebrated for three days together.

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Octavianus has thoughts of resigning his power.

And now Octavianus was at the height of his wishes, sole sovereign, sole master, of the whole Roman empire. But, on the other hand, the many dangers which attend an usurped power, appearing to him in a stronger light than ever, filled his mind with a thousand perplexing thoughts. The natural aversion of the Romans to a kingly government, their love of liberty, and the ideo of March, when his father Julius was murdered in full senate by those very men whom he thought the most devoted to his person, made him fear there might arise another Brutus, who, to restore liberty to his country, might assassinate him on his very throne. This he knew had happened to Julius Cæsar; whereas Sylla, after having laid down the authority he had usurped, died peaceably in his bed in the midst of his enemies. The passion of fear outweighed in his soul the charms of a diadem, and inclined him to follow the example of Sylla. He was indeed very unwilling to part with his authority; but fear began to get the better of his ambition. However, before he came to any resolution, he thought it advisable to consult his two most intimate and trusty friends, Agrippa and Mæcenas; the former no less famous for his probity than his valour; and the latter a man of great penetration, and generally esteemed the most refined politician of his age. Agrippa enlarged on the many and almost inevitable dangers which attend monarchy, insupportable to a free people, and to men educated in a commonwealth. He did not forget the examples of Sylla and Cæsar; and closed his speech with exhorting Octavianus to convince the world, by restoring liberty to his country, that the only motive for his taking up arms was to revenge his father's death.

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But is dissuaded from it by Mæcenas.

Mæcenas, on the other hand, remonstrated to him, that he had done too much to go back; that, after so much bloodshed, there could be no safety for him but on the throne; that, if he divested himself of the sovereign power, he would be immediately prosecuted by the children and friends of the many illustrious persons whom the misfortunes of the times had forced him to sacrifice to his safety; that it was absolutely necessary for the welfare and tranquillity of the republic, that the sovereign power should be lodged in one person, not divided among many, &c. Octavianus thanked them both for their friendly advice, but showed himself inclined to follow the opinion of Mæcenas; whereupon that able minister gave him many wise instructions and rules of government, which are related at length by Dio Cassius, and will ever be looked upon as a masterpiece in politics. Among other things he told him, That he could not fail of being successful in all his undertakings, happy in his lifetime, and famous in history after his death, if he never deviated from this rule; to wit, To govern others as he would wish to be governed himself, had he been born to obey and not to command. He added,

Rome. That if, in taking upon him the sovereign power, he dreaded the name of king, a name so odious in a commonwealth, he might content himself with the title of *Cæsar* or *Imperator*, and under that name, which was well known to the Romans, enjoy all the authority of a king.

This advice Octavianus followed, and from that time laid aside all thoughts of abdicating the sovereign power; but, to deceive the people into a belief that they still enjoyed their ancient government, he continued the old magistrates, with the same name, pomp, and ornaments, but with just as much power as he thought fit to leave them. They were to have no military power, but only their old jurisdiction of deciding finally all causes, except such as were capital; and though some of these last were left to the governor of Rome, yet the chief he reserved for himself. He paid great court to the people: the very name that covered his usurpation was a compliment to them; for he affected to call it the power of the tribuneship, though he acted as absolutely by it as if he had called it the dictatorial power. He likewise won the hearts of the populace by cheapness of provisions and plentiful markets; he frequently entertained them with shows and sports; and by these means kept them in good-humour, and made them forget usurpation, slavery, and every public evil; people in ease and plenty being under no temptation of inquiring into the title of their prince, or resenting acts of power which they do not immediately feel.

As for the senate, he filled it with his own creatures, raising the number of the conscript fathers to 1000. He supplied several poor senators with money out of the treasury to discharge the public offices, and on all occasions affected an high regard for that venerable body; but at the same time divested them of all power, and reduced them to mere cyphers. To prevent them from raising new disturbances in the distant provinces, he issued an edict, forbidding any senator to travel out of Italy without leave, except such as had lands in Sicily, or Narbonne Gaul, which at that time comprehended Languedoc, Provence, and Dauphiny. To these provinces, which were near Italy, and in a perfect state of tranquillity, they had full liberty to retire when they pleased, and live there upon their estates. Before he ended his sixth consulship, he took a census of the people, which was 41 years after the last; and in this the number of the men fit to bear arms amounted to 463,000, the greatest that had ever been found before. He likewise celebrated the games which had been decreed by the senate for his victory at Actium; and it was ordered, that they should be celebrated every fifth year, four colleges of priests being appointed to take care of them; to wit, the pontifices, the augurs, the septemvirs, and quindecimvirs. The more to gain the affections of the people, he annulled, by one edict, the many severe and unjust laws which had been enacted during the triumvirate. He raised many public buildings, repaired the old ones, and added many stately ornaments to the city, which at this time was, if we may give credit to some ancient writers, about 50 miles in compass, and contained near four millions of souls, reckoning men, women, children, and slaves. He attended business, reformed abuses, showed great regard for the Roman name, procured public abundance, pleasure, and jollity, often

Rome. often appearing in person at the public diversions, and in all things studying to render himself dear to the populace.

And now Octavianus, entering upon his seventh consulship with M. Agrippa, the third time consul, and finding all things ripe for his design, the people being highly pleased with his mild government, and the senate filled with his creatures, whose fortunes depended upon his holding the power he had usurped, went by the advice of Agrippa and Mæcenas to the senate-house; and there, in a studied speech, offered to resign his authority, and put all again into the hands of the people upon the old foundation of the commonwealth; being well apprised, that the greater part of the conscript fathers, whose interests were interwoven with his, would unanimously press him to the contrary: Which happened accordingly; for they not only interrupted him while he was speaking, but, after he had done, unanimously besought him to take upon himself alone the whole government of the Roman empire. He, with a seeming reluctance, yielded at last to their request, as if he had been compelled to accept of the sovereignty. By this artifice he compassed his design; which was, to get the power and authority, which he had usurped, confirmed to him by the senate and people for the space of 10 years: for he would not accept of it for a longer term, pretending he should in that time be able to settle all things in such peace and order that there would be no further need of his authority; but that he might then ease himself of the burden, and put the government again into the hands of the senate and people. This method he took to render the yoke less heavy; but with a design to renew his lease, if we may be allowed the expression, as soon as the ten years were expired; which he did accordingly from ten years to ten years as long as he lived, all the while governing the whole Roman empire with an absolute and uncontrouled power. With this new authority the senate resolved to distinguish him with a new name. Some of the conscript fathers proposed the name of *Romulus*, thereby to import that he was another founder of Rome; others offered other titles; but the venerable name of *Augustus*, proposed by Manutius Plancus, seemed preferable to all the rest, as it expressed more dignity and reverence than authority, the most sacred things, such as temples, and places consecrated by augurs, being termed by the Romans *Augusta*. Octavianus himself was inclined to assume the name of *Romulus*; but, fearing he should be suspected of affecting the kingdom, he declined it, and took that of *Augustus*, by which we shall henceforth distinguish him.

Though the whole power of the senate and people was now vested in Augustus, yet, that he might seem to share it with the conscript fathers, he refused to govern all the provinces; assigning to the senate such as were quiet and peaceable; and keeping to himself those which, bordering upon barbarous nations, were most exposed to troubles and wars, saying, He desired the fathers might enjoy their power with ease and safety, while he underwent all the dangers and labours: but, by this politic conduct, he secured all the military power to himself; the troops lying in the provinces he had chosen; and the others, which were governed by the senate, being quite destitute of forces. The latter were called *senatorial*, and the former *imperial*, provinces. O-

ver the provinces of both sorts were set men of distinction, to wit, such as had been consuls or prætors, with the titles of *proconsul* and *proprator*; but the government of Egypt was committed to a private knight, Augustus fearing lest a person of rank, depending upon the wealth and situation of that country, might raise new disturbances in the empire. All these governors held their employment only for a year, and were upon the arrival of their successors to depart their provinces immediately, and not fail to be at Rome within three months at the farthest. This division of the provinces was made, according to Ovid, on the ides of January; whereas he was vested by the senate and people with the sovereign power on the seventh of the ides of the same month, as is manifest from the Narbonne marbles; and from that time many writers date the years of his empire. Thus ended the greatest commonwealth, and at the same time began the greatest monarchy, that had ever been known; a monarchy which infinitely excelled in power, riches, extent, and continuance; all the empires which had preceded it.

It comprehended the greatest and by far the best part of Europe, Asia, and Africa, being near 4000 miles in length, and about half as much in breadth. As to the yearly revenues of the empire, they have by a moderate computation been reckoned to amount to forty millions of our money. But the Romans themselves now ran headlong into all manner of luxury and effeminacy. The people were become a mere mob; those who were wont to direct mighty wars, to raise and depose great kings, to bestow or take away potent empires, were so sunk and debauched, that, if they had but bread and shows, their ambition went no higher. The nobility were indeed more polite than in former ages; but at the same time idle, venal, vicious, insensible of private virtue, utter strangers to public glory or disgrace, void of zeal for the welfare of their country, and solely intent on gaining the favour of the emperor, as knowing that certain wealth and preferment were the rewards of ready submission, acquiescence, and flattery. No wonder, therefore, that they lost their liberty, without being ever again able to retrieve it.

Augustus, now absolute master of the Roman empire, took all methods to ingratiate himself with his soldiers, by whose means he had attained such a height of power. With this view, he dispersed them through different parts of Italy in 32 colonies, that he might the more easily reassemble them on proper occasions. He kept 25 legions constantly on foot, 17 of which were in Europe; viz. eight on the Rhine, four on the Danube, three in Spain, and two in Dalmatia. The other eight were sent into Asia and Africa; four of them being quartered in the neighbourhood of the Euphrates, two in Egypt, and two in Africa Propria, that is, the ancient dominions of Carthage. All these forces, amounting to 170,650 men, were constantly kept on foot by the Roman emperors for several ages. In the neighbourhood of Rome were always quartered 12 cohorts, that is, about 10,000 men; nine of which were called *prætorian cohorts*; the other three, *city cohorts*. These were established as a guard to the emperor, and to maintain peace and tranquillity in the city, but had often a great share in the disturbances which took place throughout the empire. Besides these, Augustus constantly kept at sea two powerful navies; the one riding

at

Rome.

at anchor near Ravenna in the Adriatic sea, to command Dalmatia, Greece, Cyprus, and the rest of the eastern provinces; the other at Misenum in the Mediterranean, to keep in awe the western parts of the empire. They were likewise to keep the seas clear of pirates, to convoy the vessels which brought to Rome the annual tributes from the provinces beyond sea, and to transport corn and other provisions necessary for the relief and subsistence of the city. As to the civil government, Augustus enacted several new laws, and reformed some of the old ones: however, he affected to do nothing without the advice of the senate; who were so well pleased with the complaisance showed them on all occasions, that to the rest of his titles they added that of *Pater Patriæ*, or "Father of his Country."

And now Augustus having settled all things with regard to the civil and military establishments of the empire, turned his arms against the Spanish nations called the *Contabrians* and *Asturians*, who had never been fully subdued. The war, however, terminated as usual, in favour of the Romans; and these brave nations were forced to receive the yoke, though not without the most violent resistance on their part, and the utmost difficulty on that of the Romans (See *ASTURIA*).

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His friendship
courted by the
kings of
Parthia and
India.

By this and his other conquests the name of Augustus became so celebrated, that his friendship was courted by the most distant monarchs. Phraates king of Parthia consented to a treaty with him upon his own terms, and gave him four of his own sons with their wives and children as hostages for the performance of the articles; and as a further instance of his respect, he delivered up the Roman eagles and other ensigns which had been taken from Crassus at the battle of Carrhæ. He received also an embassy from the king of India, with a letter written in the Greek tongue, in which the Indian monarch informed him, that "though he reigned over 600 kings, he had so great a value for the friendship of Augustus, that he had sent this embassy on so long a journey on purpose to desire it of him; that he was ready to meet him at whatsoever place he pleased to appoint; and that, upon the first notice, he was ready to assist him in whatever was right." This letter he subscribed by the name of *Porus king of India*. Of the ambassadors who set out from India, three only reached the presence of Augustus, who was at that time in the island of Samos, the others dying by the way. Of the three survivors one was named *Zarmar*, a gymnosophist, who followed the emperor to Athens, and there burnt himself in his presence; it being customary for the gymnosophists to put an end to their lives in this manner, when they thought they had lived long enough, or apprehended some misfortune. Soon after this the Roman dominions were extended southward over the *Garamantes*, a people whose country reached as far as the river Niger. All this time the emperor continued to make new regulations for the good of the state; and among other things caused the Sibylline oracles to be reviewed. Many of these he rejected; but such as were reckoned authentic, he caused to be copied by the pontifices themselves, and lodged them in golden cabinets, which he placed in the temple of Apollo, built by him in his palace.

The Roman empire had now extended itself so far, that it seemed to have arrived at the limits prescribed to it by nature; and as soon as this was the case, it

began to be attacked by those nations which in process of time were to overthrow it. The Germans, by which name the Romans confounded a great number of nations dwelling in the northern parts of Europe, began to make incursions into Gaul. Their first attempt happened in the year 17 B. C. when they at first gained an inconsiderable advantage, but were soon driven back with great loss. Soon after this the *Rhæti*, who seem to have inhabited the country bordering on the lake of Constance, invaded Italy, where they committed dreadful devastations, putting all the males to the sword without distinction of rank or age; nay, we are told, that, when women with child happened to fall into their hands, they consulted their augurs whether the child was male or female; and if they pronounced it a male, the mother was immediately massacred. Against these barbarians Augustus sent Drusus the second son of the empress Livia; who, though very young, found means to gain a complete victory with very little loss on his part. Those who escaped took the road to Gaul, being joined by the *Vindelici*, another nation in the neighbourhood; but Tiberius, the elder brother of Drusus, marched against them, and overthrew them so completely, that the *Rhæti*, *Vindelici*, and *Norici*, three of the most barbarous nations in those parts, were fain to submit to the pleasure of the emperor. To keep their country in awe, Tiberius planted two colonies in *Vindelicia*, opening a road from thence into *Noricum* and *Rhætia*. One of the cities which he built for the defence of his colonies was called *Dryfomagus*; the other, *Augusta Vindelicorum*; both of which are now known by the names of *Nimingen* and *Augsburg*.

Augustus, who had long since obtained all the temporal honours which could well be conferred upon him, now began to assume those of the spiritual kind also; being in the year 13 B. C. created Pontifex Maximus: an office which he continued to hold till his death; as did also his successors till the time of Theodosius. By virtue of this office he corrected a very gross mistake in the Roman calendar; for the pontifices having, for the space of 36 years, that is, ever since the reformation by Julius Cæsar, made every third year a leap year, instead of every fourth, twelve days had been inserted instead of nine, so that the Roman year consisted of three days more than it ought to have done. These three superfluous days having been thrown out, the form of the year has ever since been regularly observed, and is still known by the name of the *old style* in use among us. On this occasion he gave his own name to the month of August, as Julius Cæsar had formerly done to the month of July.

In the year 11 B. C. Agrippa died, and was succeeded in his high employment of governor of Rome by Tiberius; but, before investing him with this ample power, the emperor caused him to divorce his wife Agrippina (who had already brought him a son, and was then big with child), in order to marry Julia the widow of Agrippa and daughter of the emperor. Julia was a princess of an infamous character, as was known to almost every body excepting Augustus himself; however, Tiberius made no hesitation, through fear of disobliging the emperor.

The emperor now sent his two sons Tiberius and Drusus against the northern nations. Tiberius reduced

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The empire
invaded by
the northern
barbarians.

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Augustus
created
pontifex
maximus.

262
Tiberius
succeeds A-
grippa.

Rome. ced the Pannonians, who had attempted to shake off the yoke after the death of Agrippa. Drusus performed great exploits in Germany; but while he was considering whether he should penetrate further into these northern countries, he was seized with a violent fever, which carried him off in a few days. He was succeeded in his command by Tiberius, who is reported to have done great things; but certainly made no permanent conquests in Germany. However, he was honoured with a triumph, and had the tribunitial power for five years conferred upon him; which was no sooner done, than, to the great surprise of Augustus and the whole city, he desired leave to quit Rome and retire to Rhodes. Various reasons have been assigned for this extraordinary resolution: some are of opinion that it was in order to avoid being an eye-witness of the debaucheries of his wife Julia, who set no bounds to her lewdness; though others imagine that he was offended at the honours which Augustus had conferred on his grandchildren, especially at his styling them *princes of the Roman youth*; which left him no hopes of enjoying the sovereign power. However, Augustus positively refused to comply with his request, and his mother Livia used her utmost endeavours to dissuade him from his resolution: but Tiberius continued obstinate; and finding all other means ineffectual, at last shut himself up in his house, where he abstained four whole days from nourishment. Augustus, perceiving that he could not get the better of his obstinate and inflexible temper, at last complied with his request. Tiberius soon grew weary of his retirement, and, giving out that he had left Rome only to avoid giving umbrage to the emperor's two grandchildren, desired leave to return; but Augustus was so much displeased with his having obstinately insisted on leaving Rome, that he obliged him to remain at Rhodes for seven years longer. His mother, with much ado got him declared the emperor's lieutenant in those parts; but Tiberius, dreading the resentment of his father-in-law, continued to act as a private person during the whole time of his stay there.

A profound peace now reigned throughout the whole empire; and in consequence of this the temple of Janus was shut, which had never before happened since the time of Numa Pompilius. During this pacific interval, the Saviour of mankind was born in Judæa, as is recorded in the sacred history, 748 years after the foundation of Rome by Romulus. Three years after, Tiberius returned to the city, by permission of Augustus, who yet would not allow him to bear any public office; but in a short time, Lucius Cæsar, one of the emperor's grandchildren, died, not without suspicions of his being poisoned by Livia. Tiberius showed such great concern for his death, that the affection of Augustus for him returned; and it is said that he would at that time have adopted Tiberius, had it not been for giving umbrage to his other grandson Caius Cæsar. This obstacle, however, was soon after removed; Caius being taken off also, not without great suspicions of Livia, as well as in the former case. Augustus was exceedingly concerned at his death, and immediately adopted Tiberius as his son; but adopted also Agrippa Posthumus, the third son of the famous Agrippa; and obliged Tiberius to adopt Germanicus the son of his brother Drusus, though he had a son of his own named *Drusus*; which was a great mortifica-

tion to him. As to Agrippa, however, who might have been an occasion of jealousy, Tiberius was soon freed from him, by his disgrace and banishment, which very soon took place, but on what account is not known.

The northern nations now began to turn formidable; and though it is pretended that Tiberius was always successful against them, yet about this time they gave the Romans a most terrible overthrow; three legions and six cohorts, under Quintilius Varus, being almost entirely cut in pieces. Augustus set no bounds to his grief on this fatal occasion. For some months he let his hair and beard grow, frequently tearing his garments, knocking his head against the wall, and crying out like a distracted person, "Restore the legions, Varus!" Tiberius, however, was soon after sent into Germany; and for his exploits there he was honoured with a triumph. Augustus now took him for his colleague in the sovereignty; after which he sent Germanicus against the northern barbarians, and Tiberius into Illyricum. This was the last of his public acts; for having accompanied Tiberius for part of his journey, he died at Nola in Campania, in the 76th year of his age, and 56th of his reign. Livia was suspected of having hastened his death by giving him poisoned figs. Her reason for this was, that she feared a reconciliation between him and his grandson Agrippa whom he had banished, as we have already related. Some months before, the emperor had paid a visit to Agrippa, unknown to Livia, Tiberius, or any other person, excepting one Fabius Maximus. This man, on his return home, discovered the secret to his wife, and she to the empress. Augustus then perceiving that Fabius had betrayed him, was so provoked, that he banished him from his presence for ever; upon which the unfortunate Fabius, unable to survive his disgrace, laid violent hands on himself.

Tiberius, who succeeded to the empire, resolved to secure himself on the throne by the murder of Agrippa; whom accordingly he caused to be put to death by a military tribune. Though this might have been a sufficient evidence of what the Romans had to expect, the death of Augustus was no sooner known, than the consuls, senators, and knights, to use the expression of Tacitus, ran headlong into slavery. The two consuls first took an oath of fidelity to the emperor, and then administered it to the senate, the people, and the soldiery. Tiberius behaved in a dark mysterious manner, taking care to rule with an absolute sway, but at the same time seeming to hesitate whether he should accept the sovereign power or not; insomuch that one of the senators took the liberty to tell him, that other men were slow in performing what they had promised, but he was slow in promising what he had already performed. At last, however, his modesty was overcome, and he declared his acceptance of the sovereignty in the following words: "I accept the empire, and will hold it, till such time as you, conscript fathers, in your great prudence, shall think proper to give repose to my old age."

Tiberius had scarce taken possession of the throne, when news were brought him that the armies in Pannonia and Germany had mutinied. In Pannonia, three legions having been allowed some days of relaxation from their usual duties, either to mourn for the death of Augustus, or to rejoice for the accession of Tiberius, grew turbulent and seditious. The Pannonian muti-

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Death of
Augustus.268
Dissemble
of Ti-
berius.269
Revolt of
the Panno-
nian and
German le-
gions.263
Desires
leave to re-
tire to
Rhodes.264
Is confined
there by
Augustus
for seven
years.265
Birth of
Christ.266
Augustus
adopts Ti-
berius as his
son.

Rome.

neers were headed by one Percennius, a common soldier; who, before he served in the army, had made it his whole business to form parties in the theatres and playhouses to hiss or applaud such actors as he liked or disliked. Inflamed by the speeches of this man, they openly revolted; and though Tiberius himself wrote to them, and sent his son Drusus to endeavour to quell the tumult, they massacred some of their officers, and insulted others, till at last, being frightened by an eclipse of the moon, they began to show some signs of repentance. Of this favourable disposition Drusus took advantage; and even got the ringleaders of the revolt condemned and executed. Immediately after this they were again terrified by such violent storms and dreadful rains, that they quietly submitted, and every thing in that quarter was restored to tranquillity.

The revolt of the German legions threatened much more danger, as they were more numerous than those of Pannonia. They proceeded nearly in the same way as the Pannonian legions, falling upon their officers, especially the centurions, and beating them till they almost expired, drove them out of the camp, and some of them were even thrown into the Rhine. Germanicus, who was at that time in Gaul, hastened to the camp on the first news of the disturbance; but being unable to prevail on them to return to their duty, he was obliged to feign letters from Tiberius, granting all their demands. These were, That all those who had served 20 years should be discharged; that such as had served 16 should be deemed veterans; and that some legacies which had been left them by Augustus should not only be paid immediately, but doubled. This last article he was obliged to discharge without delay out of the money which he and his friends had brought to defray the expences of their journey; and on receiving it, the troops quietly retired to their winter-quarters. But, in the mean time, some deputies sent either by Tiberius or the senate, probably to quell the sedition, occasioned fresh disturbances; for the legionaries, taking it into their heads that these deputies were come to revoke the concessions which Germanicus had made, were with difficulty prevented from tearing them in pieces; and, notwithstanding the utmost endeavours of Germanicus, behaved in such an outrageous manner, that the general thought proper to send off his wife Agrippina, with her infant son Claudius, she herself at the same being big with child. As she was attended by many women of distinction, wives of the chief officers in the camp, their tears and lamentations in parting with their husbands occasioned a great uproar, and drew together the soldiers from all quarters. A new scene ensued, which made an impression even upon the most obstinate. They could not behold, without shame and compassion, so many women of rank travelling thus forlorn, without a centurion to attend them, or a soldier to guard them; and their general's wife among the rest, carrying her infant child in her arms, and preparing to fly for shelter against the treachery of the Roman legions. This made such a deep impression on the minds of many of them, that some ran to stop her, while the rest recurred to Germanicus, earnestly intreating him to recall his wife, and to prevent her from being obliged to seek a sanctuary among foreigners. The general improved this favourable disposition, and in a short time they of their own accord seized and

massacred the ringleaders of the revolt. Still, however, two of the legions continued in their disobedience. Against them therefore Germanicus determined to lead those who had returned to their duty. With this view he prepared vessels; but before he embarked his troops, he wrote a letter to Cæcina who commanded them, acquainting him that he approached with a powerful army, resolved to put them all to the sword without distinction, if they did not prevent him by taking vengeance on the guilty themselves. This letter Cæcina communicated only to the chief officers and such of the soldiers as had all along disapproved of the revolt, exhorting them at the same time to enter into an association against the seditious, and put to the sword such as had involved them in the present ignominy and guilt. This proposal was approved of, and a cruel massacre immediately took place; inasmuch that when Germanicus came to the camp, he found the greatest part of the legions destroyed. This greatly affected the humane Germanicus, who caused the bodies of the slain to be burnt, and celebrated their obsequies with the usual solemnities; however, the sedition was thus effectually quelled, after which he led his army into Germany. There he performed many great exploits; but still all that he could perform was far from freeing the empire from so dangerous and troublesome an enemy. In the year 19, he died, of poison, as was supposed, given by Piso, his partner in the government of Syria, to which Germanicus had been promoted after his return from the north.

In the mean time, Tiberius, though he affected to court the favour of the people by various methods, yet showed himself in general such a cruel and bloodthirsty tyrant, that he became the object of universal abhorrence. Though he had hated Germanicus in his heart, he punished Piso with death; but in about a year after the death of Germanicus, having now no object of jealousy to keep him in awe, he began to pull off the mask, and appear more in his natural character than before. He took upon himself the interpretation of all political measures, and began daily to diminish the authority of the senate; which design was much facilitated, by their own aptitude to slavery; so that he despised their meanness, while he enjoyed its effects. A law at that time substituted, which made it treason to form any injurious attempt against the majesty of the people. Tiberius assumed to himself the interpretation and enforcement of this law; and extended it not only to the cases which really affected the safety of the state, but to every conjuncture that could possibly be favourable to his hatred or suspicions. All freedom was now therefore banished from convivial meetings, and diffidence reigned amongst the dearest relations. The law of offended majesty being revived, many persons of distinction fell a sacrifice to it.

In the beginning of these cruelties, Tiberius took into his confidence Sejanus, a Roman knight, but by birth a Volscian, who found out the method of gaining his confidence, by the most refined degree of dissimulation, being an over-match for his master in his own arts. He was made by the emperor captain of the Prætorian guards, one of the most confidential trusts in the state, and extolled in the senate as a worthy associate in his labours. The servile senators, with

Rome.

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The revolt quelled by a dreadful massacre.

See Germanicus.

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Tiberius a cruel tyrant.

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Rise of Sejanus a wicked minister.

ready adulation, set up the statues of the favourite beside those of Tiberius, and seemed eager to pay him similar honours. It is not well known whether he was the adviser of all the cruelties that ensued soon after; but certain it is, that, from the beginning of his ministry, Tiberius seemed to become more fatally suspicious.

It was from such humble beginnings that this minister even ventured to aspire at the throne, and was resolved to make the emperor's foolish confidence one of the first steps to his ruin. However, he considered that cutting off Tiberius alone would rather retard than promote his designs while his son Drusus and the children of Germanicus were yet remaining. He therefore began by corrupting Livia, the wife of Drusus; whom, after having debauched her, he prevailed upon to poison her husband. This was effected by means of a slow poison (as we are told), which gave his death the appearance of a casual distemper. Tiberius, in the mean time, either naturally phlegmatic, or at least not much regarding his son, bore his death with great tranquillity. He was even heard to jest upon the occasion; for when the ambassadors from Troy came somewhat late with their compliments of condolence, he answered their pretended distresses, by condoling with them also upon the loss of Hector.

Sejanus having succeeded in this, was resolved to make his next attempt upon the children of Germanicus, who were undoubted successors to the empire. However, he was frustrated in his designs, both with regard to the fidelity of their governors, and the chastity of Agrippina their mother. Whereupon he resolved upon changing his aims, and removing Tiberius out of the city; by which means he expected more frequent opportunities of putting his designs into execution. He therefore used all his address to persuade Tiberius to retire to some agreeable retreat, remote from Rome. By this he expected many advantages, since there could be no access to the emperor but by him. Thus all letters being conveyed to the prince by soldiers at his own devotion, they would pass through his hands; by which means he must in time become the sole governor of the empire, and at last be in a capacity of removing all obstacles to his ambition. He now therefore began to insinuate to Tiberius the great and numerous inconveniences of the city, the fatigues of attending the senate, and the seditious temper of the inferior citizens of Rome. Tiberius, either prevailed upon by his persuasions, or pursuing the natural turn of his temper, which led to indolence and debauchery, in the twelfth year of his reign left Rome, and went into Campania, under pretence of dedicating temples to Jupiter and Augustus. After this, though he removed to several places, he never returned to Rome; but spent the greatest part of his time in the island of Caprea, a place which was rendered as infamous by his pleasures as detestable by his cruelties, which were shocking to human nature. Buried in this retreat, he gave himself up to his pleasures, quite regardless of the miseries of his subjects. Thus an insurrection of the Jews, upon placing his statue in Jerusalem, under the government of Pontius Pilate, gave him no sort of uneasiness. The falling of an amphitheatre at Fidenæ, in which 50,000 persons were either killed or wounded, no way affected his repose. He was only employed in studying how

to vary his odious pleasures, and forcing his feeble frame, shattered by age and former debaucheries, into the enjoyment of them. Nothing can present a more horrid picture than the retreat of this impure old man, attended by all the ministers of his perverted appetites. He was at this time 67 years old; his person was most displeasing; and some say the disagreeableness of it, in a great measure, drove him into retirement. He was quite bald before; his face was all broke out into ulcers, and covered over with plasters; his body was bowed forward, while its extreme height and leanness increased its deformity. With such a person, and a mind still more hideous, being gloomy, suspicious, and cruel, he sat down with a view rather of forcing his appetites than satisfying them. He spent whole nights in debaucheries at the table; and he appointed Pomponius Flaccus and Lucius Piso to the first posts of the empire, for no other merit than that of having sat up with him two days and two nights without interruption. These he called his friends of all hours. He made one Novellus Torgnatus a prætor for being able to drink off five bottles of wine at a draught. His luxuries of another kind were still more detestable, and seemed to increase with his drunkenness and gluttony. He made the most eminent women of Rome subservient to his lusts; and all his inventions only seemed calculated how to make his vices more extravagant and abominable. The numberless obscene medals dug up in that island at this day bear witness at once to his shame, and the veracity of the historians who have described his debaucheries. In short, in this retreat, which was surrounded with rocks on every side, he quite gave up the business of the empire; or, if he was ever active, it was only to do mischief. But, from the time of his retreat, he became more cruel, and Sejanus always endeavoured to increase his distrusts. Secret spies and informers were placed in all parts of the city, who converted the most harmless actions into subjects of offence. If any person of merit testified any concern for the glory of the empire, it was immediately construed into a design to obtain it. If another spoke with regret of former liberty, he was supposed to aim at re-establishing the commonwealth. Every action became liable to forced interpretations; joy expressed an hope of the prince's death; melancholy, an envying of his prosperity. Sejanus found his aim every day succeeding; the wretched emperor's terrors were an instrument that he wrought upon at his pleasure, and by which he levelled every obstacle to his designs. But the chief objects of his jealousy were the children of Germanicus, whom he resolved to put out of the way. He therefore continued to render them obnoxious to the emperor, to alarm him with false reports of their ambition, and to terrify them with alarms of his intended cruelty. By these means, he so contrived to widen the breach, that he actually produced on both sides those dispositions which he pretended to obviate; till at length, the two princes Nero and Drusus were declared enemies to the state, and afterwards starved to death in prison; while Agrippina their mother was sent into banishment.

In this manner Sejanus proceeded, removing all who stood between him and the empire, and every day increasing in confidence with Tiberius, and power with the senate. The number of his statues exceeded even

Rome. those of the emperor; people swore by his fortune, in the same manner as they would have done had he been actually upon the throne, and he was more dreaded than even the tyrant who actually enjoyed the empire. But the rapidity of his rise seemed only preparatory to the greatness of his downfall. All we know of his first disgrace with the emperor is, that Satrius Secundus was the man who had the boldness to accuse him. Antonia, the mother of Germanicus, seconded the accusation. What were the particulars of his crimes, we cannot learn; but certain it is, that he attempted to usurp the empire, by aiming at the life of Tiberius. He was very near dispatching him, when his practices were discovered, and his own life was substituted for that against which he aimed. Tiberius, sensible of the traitor's power, proceeded with his usual dissimulation in having him apprehended. He granted him new honours at the very time he resolved his death, and took him as his colleague in the consulship. The emperor's letter to the senate began only with slight complaints against his friend, but ended with an order for putting him in prison. He intreated the senators to protect a poor old man, as he was, abandoned by all; and, in the mean time, prepared ships for his flight, and ordered soldiers for his security. The senate, who had long been jealous of the favourite's power, and dreaded his cruelty, immediately took this opportunity of going beyond their orders. Instead of sentencing him to imprisonment, they directed his execution. A strange revolution now appeared in the city; of those numbers that but a moment before were pressing into the presence of Sejanus, with offers of service and adulation, not one was found that would seem to be of his acquaintance: he was deserted by all; and those who had formerly received the greatest benefits from him, seemed now converted into his most inveterate enemies. As he was conducting to execution, the people loaded him with insult and execration. He attempted to hide his face with his hands; but even this was denied him, and his hands were secured. Nor did the rage of his enemies subside with his death; his body was ignominiously dragged about the streets, and his whole family executed with him.

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Sejanus disgraced and put to death.

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Monstrous cruelty of Tiberius. His death only lighted up the emperor's rage for further executions. The prisons were crowded with pretended accomplices in the conspiracy of Sejanus. Tiberius began to grow weary of particular executions; he therefore gave orders that all the accused should be put to death together without further examination. Of 20 senators, whom he chose for his council, he put 16 to death. "Let them hate me," (cried he) "so long as they obey me." He then averred, that Priam was an happy man, who outlived all his posterity. In this manner there was not a day without some barbarous execution, in which the sufferers were obliged to undergo the most shameful indignities and exquisite torments. When one Camillus had killed himself to avoid the torture: "Ah," (cried Tiberius), "how that man has been able to escape me!" When a prisoner earnestly intreated that he would not defer his death: "No," (cried the tyrant), "I am not sufficiently your friend, to shorten your torment." He often satisfied his eyes with the tortures of the wretches that were put to death before him; and in the days of Suetonius

Rome. the rock was to be seen, from which he ordered such as had displeased him to be thrown headlong. As he was one day examining some persons upon the rack, he was told that an old friend of his was come from Rhodes to see him. Tiberius supposing him brought for the purpose of information, immediately ordered him to the torture; and when he was convinced of his mistake, he ordered him to be put to death, to prevent farther discovery.

In this manner did the tyrant continue to torment others, although he was himself still more tortured by his own suspicions; so that in one of his letters to the senate, he confessed that the gods and goddesses had so afflicted and confounded him, that he knew not what or how to write. In the mean time, the frontier provinces were invaded with impunity by the barbarians. Mæsia was seized on by the Dacians and Sarmatians; Gaul was wasted by the Germans, and Armenia conquered by the king of Parthia. Tiberius, however, was so much a slave to his brutal appetites, that he left his provinces wholly to the care of his lieutenants, and they were intent rather on the accumulation of private fortune than the safety of the state. Such a total disorder in the empire produced such a degree of anxiety in him who governed it, that he was heard to wish, that heaven and earth might perish when he died. At length, however, in the 22d year of his reign, he began to feel the approaches of his dissolution, and all his appetites totally to forsake him. He now, therefore, found it was time to think of a successor, and hesitated for a long while, whether he should choose Caligula, whose vices were too apparent to escape his observation. He had been often heard to say, that this youth had all the faults of Sylla, without his virtues; that he was a serpent that would sting the empire, and a Phaeton that would set the world in a flame. However, notwithstanding all his well-grounded apprehensions, he named him for his successor; willing, perhaps, by the enormity of Caligula's conduct to cover the memory of his own.

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Chooses Caligula his successor.

But though he thought fit to choose a successor, he concealed his approaching decline with the utmost care, as if he was willing at once to hide it from the world and himself. He long had a contempt for physic, and refused the advice of such as attended him: he even seemed to take a pleasure in being present at the sports of the soldiers, and ventured himself to throw a javelin at a boar that was let loose before him. The effort which he made upon this occasion caused a pain in his side, which hastened the approaches of death: still, however, he seemed willing to avoid his end; and strove, by change of place, to put off the inquietude of his own reflections. He left his favourite island, and went upon the continent, where he at last fixed at the promontory of Misenum. It was here that Charicles, his physician, pretending to kiss his hand, felt the failure of his pulse; and apprised Macro, the emperor's present favourite, that he had not above two days to live. Tiberius, on the contrary, who had perceived the art of Charicles, did all in his power to impress his attendants with an opinion of his health: he continued at table till the evening; he saluted all his guests as they left the room, and read the acts of the senate, in which they had absolved some persons he had written against, with great indignation. He

resolved

resolved to take signal vengeance of their disobedience, and meditated new schemes of cruelty, when he fell into such faintings, as all believed were fatal. It was in this situation, that, by Macro's advice, Caligula prepared to secure the succession. He received the congratulations of the whole court, caused himself to be acknowledged by the Prætorian soldiers, and went forth from the emperor's apartment amidst the applauses of the multitude; when all of a sudden he was informed that the emperor was recovered, that he had begun to speak, and desired to eat. This unexpected account filled the whole court with terror and alarm: every one who had before been earnest in testifying their joy, now re-assumed their pretended sorrow, and left the new emperor, through a feigned solicitude for the fate of the old. Caligula himself seemed thunder-struck; he preserved a gloomy silence, expecting nothing but death, instead of the empire at which he had aspired. Macro, however, who was hardened in crimes, ordered that the dying emperor should be dispatched, by smothering him with pillows, or, as others will have it, by poison. In this manner Tiberius died, in the 78th year of his age, after reigning 22.

The Romans were, at this time, arrived at their highest pitch of effeminacy and vice. The wealth of almost every nation of the empire, having, for some time, circulated through the city, brought with it the luxuries peculiar to each country; so that Rome presented a detestable picture of various pollution. In this reign lived Apicius, so well known for having reduced gluttony into a system; some of the most notorious in this way, thought it no shame to give near 100 pounds for a single fish, and exhaust a fortune of 50,000 pounds in one entertainment. Debaucheries of every other kind kept pace with this; while the detestable folly of the times thought it was refining upon pleasure to make it unnatural. There were at Rome men called *spintriae*, whose sole trade it was to study new modes of pleasure; and these were universally favourites of the great. The senators were long fallen from their authority, and were no less estranged from their integrity and honour. Their whole study seemed to be, how to invent new ways of flattering the emperor, and various methods of tormenting his supposed enemies. The people were still more corrupt: they had, for some years, been accustomed to live in idleness, upon the donations of the emperor; and, being satisfied with subsistence, entirely gave up their freedom. Too effeminate and cowardly to go to war, they only railed against their governors; so that they were bad soldiers and seditious citizens. In the 18th year of this monarch's reign, Christ was crucified. Shortly after his death, Pilate is said to have written to Tiberius an account of his passion, resurrection, and miracles; upon which the emperor made a report of the whole to the senate, desiring that Christ might be accounted a god by the Romans. But the senate being displeased that the proposal had not come first from themselves, refused to allow of his apotheosis; alleging an ancient law, which gave them the superintendence in all matters of religion. They even went so far, as by an edict to command that all Christians should leave the city: but Tiberius, by another edict, threatened death to all such as should accuse them; by which means they continued unmolested during the rest of his reign.

No monarch ever came to the throne with more advantages than Caligula. He was the son of Germanicus, who had been the darling of the army and the people. He was bred among the soldiers, from whom he received the name of *Caligula*, from the short buckskin, called *caliga*, that was worn by the common centinels, and which was also usually worn by him. As he approached Rome, the principal men of the state went out in crowds to meet him. He received the congratulations of the people on every side, all equally pleased in being free from the cruelties of Tiberius, and in hoping new advantages from the virtues of his successor.

Caligula seemed to take every precaution to impress them with the opinion of an happy change. Amidst the rejoicings of the multitude, he advanced mourning, with the dead body of Tiberius, which the soldiers brought to be burnt at Rome, according to the custom of that time. Upon his entrance into the city, he was received with new titles of honour by the senate, whose chief employment seemed now to be, the art of increasing their emperor's vanity. He was left co-heir with Gemellus, grandson to Tiberius; but they set aside the nomination, and declared Caligula sole successor to the empire. The joy for this election was not confined to the narrow bounds of Italy; it spread through the whole empire, and victims without number were sacrificed upon the occasion. Some of the people, upon his going into the island of Campania, made vows for his return; and shortly after, when he fell sick, the multitudes crowded whole nights round his palace, and some even devoted themselves to death in case he recovered, setting up bills of their resolutions in the streets. In this affection of the citizens, strangers themselves seemed ambitious of sharing. Artabanus, king of Parthia, sought the emperor's alliance with assiduity. He came to a personal conference with one of his legates; passed the Euphrates, adored the Roman eagles, and kissed the emperor's images; so that the whole world seemed combined to praise him for virtues which they supposed him to possess.

The new emperor at first seemed extremely careful of the public favour; and having performed the funeral solemnities of Tiberius, he hastened to the islands of Pandataria and Pontia, to remove the ashes of his mother and brothers, exposing himself to the dangers of tempestuous weather, to give a lustre to his piety. Having brought them to Rome, he instituted annual solemnities in their honour, and ordered the month of September to be called *Germanicus*, in memory of his father. These ceremonies being over, he conferred the same honours upon his grandmother Antonia, which had before been given to Livia; and ordered all informations to be burnt; that any ways exposed the enemies of his family. He even refused a paper that was offered him, tending to the discovery of a conspiracy against him; alleging, That he was conscious of nothing to deserve any man's hatred, and therefore had no fears from their machinations. He caused the institutions of Augustus, which had been disused in the reign of Tiberius, to be revived; undertook to reform many abuses in the state, and severely punished corrupt governors. Among others, he banished Pontius Pilate into Gaul, where this unjust magistrate afterwards put an end to his life by suicide. He banished the *spintriae*,

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Caligula
begins to
reign well.

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or inventors of abominable recreations, from Rome; attempted to restore the ancient manner of electing magistrates by the suffrages of the people; and gave them a free jurisdiction, without any appeal to himself. Although the will of Tiberius was annulled by the senate, and that of Livia suppressed by Tiberius, yet he caused all their legacies to be punctually paid; and in order to make Gemellus amends for missing the crown, he caused him to be elected Princeps Juventutis, or principal of the youth. He restored some kings to their dominions who had been unjustly dispossessed by Tiberius, and gave them the arrears of their revenues. And, that he might appear an encourager of every virtue, he ordered a female slave a large sum of money for enduring the most exquisite torments without discovering the secrets of her master. So many concessions, and such apparent virtue, could not fail of receiving just applause. A shield of gold, bearing his image, was decreed to be carried annually to the Capitol, attended by the senate and the sons of the nobility singing in praise of the emperor's virtues. It was likewise ordained, that the day on which he was appointed to the empire should be called *Pubitia*; implying, that when he came to govern, the city received a new foundation.

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But be-
comes a
most out-
rageous ty-
rant.

In less than eight months all this shew of moderation and clemency vanished; while furious passions, unexampled avarice, and capricious cruelty, began to take their turn in his mind. As most of the cruelties of Tiberius arose from suspicion, so most of those committed by Caligula took rise from prodigality. Some indeed assert, that a disorder which happened soon after his accession to the empire, entirely discomposed his understanding. However this may be, madness itself could scarce dictate cruelties more extravagant, or inconsistencies more ridiculous, than are imputed to him; some of them appear almost beyond belief, as they seem entirely without any motive to incite such barbarities.

The first object of his cruelty was a person named *Politus*, who had devoted himself to death, in case the emperor, who was then sick, should recover. When Caligula's health was re-established, he was informed of the zeal of *Politus*, and actually compelled him to complete his vow. This ridiculous devotee was therefore led round the city, by children, adorned with chaplets, and then put to death, being thrown headlong from the ramparts. Another, named *Secundus*, had vowed to fight in the amphitheatre upon the same occasion. To this he was also compelled, the emperor himself choosing to be a spectator of the combat. However, he was more fortunate than the former, being so successful as to kill his adversary, by which he obtained a release from his vow. Gemellus was the next who suffered from the tyrant's inhumanity. The pretence against him was, that he had wished the emperor might not recover, and that he had taken a counter-poison to secure him from any secret attempts against his life. Caligula ordered him to kill himself; but as the unfortunate youth was ignorant of the manner of doing it, the emperor's messengers soon instructed him in the fatal lesson. Silenus, the emperor's father-in-law, was the next that was put to death upon slight suspicions; and Gercinus, a senator of noted integrity, refusing to witness falsely against him, shared his fate. After these followed a crowd of victims to the emperor's avarice or suspicion. The pretext against

them was their enmity to his family; and in proof of his accusations he produced those very memorials which but a while before he pretended to have burnt. Among the number of those who were sacrificed to his jealousy, was Macro, the late favourite of Tiberius, and the person to whom Caligula owed his empire. He was accused of many crimes, some of which were common to the emperor as well as to him, and his death brought on the ruin of his whole family.

These cruelties, however, only seemed the first fruits of a mind naturally timid and suspicious; his vanity and profusion soon gave rise to others which were more atrocious, as they sprung from less powerful motives. His pride first began by assuming to himself the title of ruler, which was usually granted only to kings. He would also have taken the crown and diadem, had he not been advised that he was already superior to all the monarchs of the world. Not long after, he assumed divine honours, and gave himself the names of such divinities as he thought most agreeable to his nature. For this purpose he caused the heads of the statues of Jupiter and some other gods to be struck off, and his own to be put in their places. He frequently seated himself between Castor and Pollux, and ordered all who came to their temple to worship, should pay their adorations only to him; nay, at last he altered their temple to the form of a portico, which he joined to his palace, that the very gods, as he said, might serve him in the quality of porters.

He was not less notorious for the depravation of his appetites than for his ridiculous presumptions. Neither person, place, nor sex, were obstacles to the indulgence of his unnatural lusts. There was scarce a lady of any quality in Rome that escaped his lewdness; and, indeed, such was the degeneracy of the times, that there were few ladies who did not think this disgrace an honour. He committed incest with his three sisters, and at public feasts they lay with their heads upon his bosom by turns. Of these he prostituted Livia and Agrippina to his vile companions, and then banished them as adulteresses and conspirators against his person. As for Drusilla, he took her from her husband Longinus, and kept her as his wife. Her he loved so affectionately, that, being sick, he appointed her as heiress of his empire and fortune; and she happening to die before him, he made her a goddess. Nor did her example when living, appear more dangerous to the people than her divinity when dead. To mourn for her death was a crime, as she was become a goddess; and to rejoice for her divinity was capital, because she was dead. Nay, even silence itself was an unpardonable insensibility, either of the emperor's loss or his sister's advancement. Thus he made his sister subservient to his profit, as before he had done to his pleasure; raising vast sums of money by granting pardons to some, and by confiscating the goods of others. As to his marriages, whether he contracted them with greater levity, or dissolved them with greater injustice, is not easy to determine. Being present at the nuptials of Livia Orestilla with Piso, as soon as the solemnity was over, he commanded her to be brought to him as his own wife, and then dismissed her in a few days. He soon after banished her upon suspicion of cohabiting with her husband after she was parted from him. He was enamoured of Lollia Paulina, upon a bare relation of her grand-

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mother's beauty; and thereupon took her from her husband, who commanded in Macedonia: notwithstanding which, he repudiated her as he had done the former, and likewise forbade her future marrying with any other. The wife who caught most firmly upon his affections was Milonia Caesonia, whose chief merit lay in her perfect acquaintance with all the alluring arts of her sex, for she was otherwise possessed neither of youth nor beauty. She continued with him during his reign; and he loved her so ridiculously, that he sometimes showed her to his soldiers dressed in armour, and sometimes to his companions stark naked.

But of all his vices, his prodigality was the most remarkable, and that which in some measure gave rise to the rest. The luxuries of former emperors were simplicity itself, when compared to those which he practised. He contrived new ways of bathing, where the richest oils and most precious perfumes were exhausted with the utmost profusion. He found out dishes of immense value; and had even jewels, as we are told, dissolved among his sauces. He sometimes had services of pure gold presented before his guests instead of meat; observing, that a man should be an economist or an emperor.

For several days together he spent considerable sums of money among the people. He ordered ships of a prodigious bulk to be built of cedar, the stems of ivory inlaid with gold and jewels, the sails and tackling of various silks, while the decks were planted with the choicest fruit trees, under the shade of which he often dined. Here, attended by all the ministers of his pleasures, the most exquisite fingers, and the most beautiful youths, he coasted along the shore of Campania with great splendor. All his buildings seemed rather calculated to raise astonishment, than to answer the purposes of utility. But the most notorious instance of his fruitless profusion was the vast bridge at Puteoli, which he undertook in the third year of his reign. To satisfy his desire of being master as well of the ocean as the land, he caused an infinite number of ships to be fastened to each other, so as to make a floating bridge from Baiæ to Puteoli, across an arm of the sea three miles and an half broad. The ships being placed in two rows, in form of a crescent, were secured to each other with anchors, chains, and cables. Over these were laid vast quantities of timber, and upon that earth, so as to make the whole resemble one of the streets of Rome. He next caused several houses to be built upon his new bridge, for the reception of himself and his attendants, into which fresh water was conveyed by pipes from land. He then repaired thither with all his court, attended by prodigious throngs of people, who came from all parts to be spectators of such an expensive pageant. It was there that Caligula, adorned with all the magnificence of eastern royalty, sitting on horseback with a civic crown and Alexander's breast-plate, attended by the great officers of the army, and all the nobility of Rome, entered at one end of the bridge, and with ridiculous importance rode to the other. At night, the number of torches and other illuminations with which this expensive structure was adorned, cast such a gleam as illuminated the whole bay; and all the neighbouring mountains. This seemed to give the weak emperor new cause for exultation; boasting that he had turned night into day, as well as sea into land.

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The next morning he again rode over in a triumphant chariot, followed by a numerous train of charioteers, and all his soldiers in glittering armour. He then ascended a rostrum erected for the occasion, where he made a solemn oration in praise of the greatness of his enterprise, and the assiduity of his workmen and his army. He then distributed rewards among his men, and a splendid feast succeeded. In the midst of the entertainment many of his attendants were thrown into the sea; several ships filled with spectators were attacked and sunk in an hostile manner; and although the majority escaped through the calmness of the weather, yet many were drowned; and some who endeavoured to save themselves by climbing to the bridge, were struck down again by the emperor's command. The calmness of the sea during this pageant, which continued for two days, furnished Caligula with fresh opportunities for boasting; being heard to say, "that Neptune took care to keep the sea smooth and serene, merely out of reverence to him."

Expences like these, it may be naturally supposed, must have exhausted the most unbounded wealth: in fact, after reigning about a year, Caligula found his revenues totally exhausted; and a fortune of about 18,000,000 of our money, which Tiberius had amassed together, entirely spent in extravagance and folly. Now, therefore, his prodigality put him upon new methods of supplying the exchequer; and as before his profusion, so now his rapacity became boundless. He put in practice all kinds of rapine and extortion; while his principal study seemed to be the inventing new imposts and illicit confiscations. Every thing was taxed, to the very wages of the meanest tradesman. He caused freemen to purchase their freedom a second time; and poisoned many who had named him for their heir, to have the immediate possession of their fortunes. He set up a brothel in his own palace, by which he gained considerable sums by all the methods of prostitution. He also kept a gaming-house, in which he himself presided, scrupling none of the meanest tricks in order to advance his gains. On a certain occasion having had a run of ill luck, he saw two rich knights passing through his court; upon which he suddenly rose up, and causing both to be apprehended, confiscated their estates, and then joining his former companions, boasted that he never had a better throw in his life. Another time, wanting money for a stake, he went down and caused several noblemen to be put to death; and then returning, told the company that they sat playing for trifles while he had won 60,000 sesterces at a cast.

Such insupportable and capricious cruelties produced many secret conspiracies against him; but these were for a while deferred, upon account of his intended expedition against the Germans and Britons, which he undertook in the third year of his reign. For this purpose, he caused numerous levies to be made in all parts of the empire; and talked with so much resolution, that it was universally believed he would conquer all before him. His march perfectly indicated the inequality of his temper: sometimes it was so rapid, that the cohorts were obliged to leave their standards behind them; at other times it was so slow, that it more resembled a pompous procession than a military expedition. In this disposition he would cause himself to be carried on eight mens shoulders, and order all the neighbouring

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neighbouring cities to have their streets well swept and watered to defend him from the dust. However, all these mighty preparations ended in nothing. Instead of conquering Britain, he only gave refuge to one of its banished princes; and this he described in a letter to the senate, as taking possession of the whole island. Instead of conquering Germany, he only led his army to the sea shore in Batavia. There disposing his engines and warlike machines with great solemnity, and drawing up his men in order of battle, he went on board his galley, with which coasting along, he commanded his trumpets to sound and the signal to be given as if for an engagement; upon which, his men having had previous orders, immediately fell to gathering the shells that lay upon the shore into their helmets, terming them the *spoils of the conquered ocean worthy of the palace and the capitol*. After this doughty expedition, calling his army together as a general after victory, he harangued them in a pompous manner, and highly extolled their achievements; and then distributing money among them, dismissed them with orders to be joyful, and congratulated them upon their riches. But that such exploits should not pass without a memorial, he caused a lofty tower to be erected by the sea-side; and ordered the galleys in which he had put to sea to be conveyed to Rome in a great measure by land.

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Meanness
of the se-
nate.

After numberless instances of folly and cruelty in this expedition, among which he had intentions of destroying the whole army that had formerly mutinied under his father Germanicus, he began to think of a triumph. The senate, who had long been the timid ministers of his pride and cruelty, immediately set about consulting how to satisfy his expectations. They considered that a triumph would, even to himself, appear as a burlesque upon his expedition: they therefore decreed him only an ovation. Having come to this resolution, they sent him a deputation, informing him of the honours granted him, and the decree, which was drawn up in terms of the most extravagant adulation. However, their flattery was far from satisfying his pride. He considered their conduct rather as a diminution of his power, than an addition to his glory. He therefore ordered them, on pain of death, not to concern themselves with his honours; and being met by their messengers on the way, who invited him to come and partake of the preparations which the senate had decreed, he informed them that he would come; and then laying his hand upon his sword, added, that he would bring that also with him. In this manner, either quite omitting his triumph, or deferring it to another time, he entered the city with only an ovation; while the senate passed the whole day in acclamations in his praise, and speeches filled with the most excessive flattery. This conduct in some measure served to reconcile him, and soon after their excessive zeal in his cause entirely gained his favour. For it happened that Protogenes, who was one of the most intimate and the most cruel of his favourites, coming into the house, was fawned upon by the whole body of the senate, and particularly by Proculus. Whereupon Protogenes with a fierce look, asked how one who was such an enemy to the emperor could be such a friend to him? There needed no more to excite the senate against Proculus. They instantly seized upon him, and violently tore him

in pieces; plainly showing by their conduct, that tyranny in a prince produces cruelty in those whom he governs.—It was after returning from this extravagant expedition, that he was waited upon by a deputation of the Jews of Alexandria, who came to deprecate his anger for not worshipping his divinity as other nations had done. The emperor gave them a very ungracious reception, and would probably have destroyed their countrymen, if he had not soon after been cut off.

This affair of the Jews remained undecided during his reign; but it was at last settled by his successor to their satisfaction. It was upon this occasion that Philo made the following remarkable answer to his associates, who were terrified with apprehensions of the emperor's indignation; "Fear nothing (cried he to them), Caligula, by declaring against us, puts God on our side."

The continuation of this horrid reign seemed to threaten universal calamity: however, it was but short. There had already been several conspiracies formed to destroy the tyrant, but without success. That which at last succeeded in delivering the world of this monster, was concerted under the influence of Cassius Cherea, tribune of the prætorian bands. This was a man of experienced courage, an ardent admirer of freedom, and consequently an enemy to tyrants. Besides the motives which he had in common with other men, he had received repeated insults from Caligula, who took all occasions of turning him into ridicule, and impeaching him of cowardice, merely because he had an effeminate voice. Whenever Cherea came to demand the watch-word from the emperor, according to custom, he always gave him either Venus, Adonis, or some such, implying effeminacy and softness. He therefore secretly imparted his designs to several senators and knights, whom he knew to have received personal injuries from Caligula, or to be apprehensive of those to come. Among these was Valerius Asiaticus, whose wife the emperor had debauched. Annus Vincianus, who was suspected of having been in a former conspiracy, was now desirous of really engaging in the first design that offered. Besides these, were Clemens the prefect; and Calistus, whose riches made him obnoxious to the tyrant's resentment.

While these were deliberating upon the most certain and speedy method of destroying the tyrant, an unexpected incident gave new strength to the conspiracy. Pomedius, a senator of distinction, having been accused before the emperor, of having spoken of him with disrespect, the informer cited one Quintilia, an actress, to confirm his accusation. Quintilia, however, was possessed of a degree of fortitude not easily found. She denied the fact with obstinacy; and being put to the torture at the informer's request, she bore the severest torments of the rack with unshaken constancy. But what is most remarkable of her resolution is, that she was acquainted with all the particulars of the conspiracy; and although Cherea was appointed to preside at her torture, she revealed nothing: on the contrary, when she was led to the rack, she trod upon the toe of one of the conspirators, intimating at once her knowledge of the confederacy, and her own resolution not to divulge it. In this manner she suffered until all her limbs were dislocated; and in that deplorable state was presented to the emperor, who ordered her a gratuity for what she had suffered. Cherea could now no longer

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A conspi-
racy form-
ed against
the emper-
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Rome. ger contain his indignation at being thus made the instrument of a tyrant's cruelty. He therefore proposed to the conspirators to attack him as he went to offer sacrifices in the Capitol, or while he was employed in the secret pleasures of the palace. The rest, however, were of opinion, that it was best to fall upon him when he should be unattended; by which means they would be more certain of success. After several deliberations, it was at last resolved to attack him during the continuance of the Palatine games, which lasted four days; and to strike the blow when his guards should have the least opportunity to defend him. In consequence of this, the three first days of the games passed without affording that opportunity which was so ardently desired. Cherea now, therefore, began to apprehend, that deferring the time of the conspiracy might be a mean to divulge it: he even began to dread, that the honour of killing the tyrant might fall to the lot of some other person more bold than himself. Wherefore, he at last resolved to defer the execution of his plot only to the day following, when Caligula should pass through a private gallery, to some baths not far distant from the palace.

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Who is
murdered. The last day of the games was more splendid than the rest; and Caligula seemed more sprightly and condescending than usual. He took great amusement in seeing the people scramble for the fruits and other rarities thrown by his order among them; and seemed no way apprehensive of the plot formed for his destruction. In the mean time, the conspiracy began to transpire; and had he possessed any friends, it could not have failed of being discovered. The conspirators waited a great part of the day with the most extreme anxiety; and at one time Caligula seemed resolved to spend the whole day without any refreshment. This unexpected delay entirely exasperated Cherea; and had he not been restrained, he would have gone and perpetrated his design in the midst of all the people. Just at that instant, while he was yet hesitating what he should do, Asprenas, one of the conspirators, persuaded Caligula to go to the bath and take some slight refreshment, in order to enjoy the rest of the entertainment with greater relish. The emperor therefore rising up, the conspirators used every precaution to keep off the throng, and to surround him, under pretence of greater affluity. Upon entering into the little vaulted gallery that led to the bath, he was met by a band of Grecian children who had been instructed in singing, and were come to perform in his presence. He was once more therefore going to return into the theatre with them, had not the leader of the band excused himself, as having a cold. This was the moment that Cherea seized to strike him to the ground; crying out, "Tyrant, think upon this." Immediately after, the other conspirators rushed in; and while the emperor continued to resist, crying out, that he was not yet dead, they dispatched him with 30 wounds, in the 29th year of his age, after a short reign of three years ten months and eight days. With him, his wife and infant daughter also perished; the one being stabbed by a centurion, the other having its brains dashed out against the wall. His coin was also melted down by a decree of the senate; and such precautions were taken, that all seemed willing, that neither his features nor his name might be transmitted to posterity.

As soon as the death of Caligula was made public, it produced the greatest confusion in all parts of the city. The conspirators, who only aimed at destroying a tyrant without attending to a successor, had all sought safety by retiring to private places. Some thought the report of the emperor's death was only an artifice of his own, to see how his enemies would behave. Others averred that he was still alive, and actually in a fair way to recover. In this interval of suspense, the German guards finding it a convenient time to pillage, gave a loose to their licentiousness, under a pretence of revenging the emperor's death. All the conspirators and senators that fell in their way received no mercy: Asprenas, Norbanus, and Anteius, were cut in pieces. However, they grew calm by degrees, and the senate was permitted to assemble, in order to deliberate upon what was necessary to be done in the present emergency.

In this deliberation, Saturninus, who was then consul, insisted much upon the benefits of liberty; and talked in raptures of Cherea's fortitude, alleging that it deserved the highest reward. This was a language highly pleasing to the senate. Liberty now became the favourite topic; and they even ventured to talk of extinguishing the very name of Cæsar. Impressed with this resolution, they brought over some cohorts of the city to their side, and boldly seized upon the Capitol. But it was now too late for Rome to regain her pristine freedom; the populace and the army opposing their endeavours. The former were still mindful of their ancient hatred to the senate; and remembered the donations and public spectacles of the emperors with regret. The latter were sensible they could have no power but in a monarchy; and had some hopes that the election of the emperor would fall to their determination. In this opposition of interests, and variety of opinions, chance seemed at last to decide the fate of the empire. Some soldiers happening to run about the palace, discovered Claudius, Caligula's uncle, lurking in a secret place, where he had hid himself through fear. Of this personage, who had hitherto been despised for his imbecillity, they resolved to make an emperor: and accordingly carried him upon their shoulders to the camp, where they proclaimed him at a time he expected nothing but death.

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Claudius
made em-
peror. The senate now, therefore, perceiving that force alone was likely to settle the succession, were resolved to submit, since they had no power to oppose. Claudius was the person most nearly allied to the late emperor, then living; being the nephew of Tiberius, and the uncle of Caligula. The senate therefore passed a decree, confirming him in the empire; and went soon after in a body, to render him their compulsive homage. Cherea was the first who fell a sacrifice to the jealousy of this new monarch. He met death with all the fortitude of an ancient Roman; desiring to die by the same sword with which he had killed Caligula. Lupus, his friend, was put to death with him; and Sabinus, one of the conspirators, laid violent hands on himself.

Claudius was 59 years old when he began to reign. The complicated diseases of his infancy had in some measure affected all the faculties both of his body and mind. He was continued in a state of pupillage much longer than was usual at that time; and seemed, in

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every part of his life incapable of conducting himself. Not that he was entirely destitute of understanding, since he had made a tolerable proficiency in the Greek and Latin languages, and even wrote an history of his own time; which, however destitute of other merit, was not contemptible in point of style. Nevertheless, with this share of erudition, he was unable to advance himself in the state, and seemed utterly neglected until he was placed all at once at the head of affairs.

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His happy
administra-
tion in the
beginning
of his reign.

The commencement of his reign gave the most promising hopes of an happy continuance. He began by passing an act of oblivion for all former words and actions, and disannulled all the cruel edicts of Caligula. He forbade all persons, upon severe penalties, to sacrifice to him as they had done to Caligula; was assiduous in hearing and examining complaints; and frequently administered justice in person; tempering by his mildness the severity of the law. We are told of his bringing a woman to acknowledge her son, by adjudging her to marry him. The tribunes of the people coming one day to attend him when he was on his tribunal, he courteously excused himself for not having room for them to sit down. By this deportment he so much gained the affections of the people, that upon a vague report of his being slain by surprise, they ran about the streets in the utmost rage and consternation, with horrid imprecations against all such as were accessory to his death; nor could they be appeased, until they were assured, with certainty, of his safety. He took a more than ordinary care that Rome should be continually supplied with corn and provisions, securing the merchants against pirates. He was not less assiduous in his buildings, in which he excelled almost all that went before him. He constructed a wonderful aquæduct, called after his own name, much surpassing any other in Rome, either for workmanship or plentiful supply. It brought water from 40 miles distance, through great mountains, and over deep valleys; being built on stately arches, and furnishing the highest parts of the city. He made also an haven at Ostia; a work of such immense expence, that his successors were unable to maintain it. But his greatest work of all was the draining of the lake Fucinus, which was the largest in Italy, and bringing its water into the Tiber, in order to strengthen the current of that river. For effecting this, among other vast difficulties, he mined through a mountain of stone three miles broad, and kept 30,000 men employed for 11 years together.

To this solicitude for the internal advantages of the state, he added that of a watchful guardianship over the provinces. He restored Judea to Herod Agrippa, which Caligula had taken from Herod Antipas, his uncle, the man who had put John the Baptist to death, and who was banished by order of the present emperor. Claudius also restored such princes to their kingdoms as had been unjustly dispossessed by his predecessors; but deprived the Lycians and Rhodians of their liberty, for having promoted insurrections, and crucified some citizens of Rome.

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His expedi-
tion against
Britain.

He even undertook to gratify the people by foreign conquest. The Britons, who had, for near 100 years, been left in sole possession of their own island, began to seek the mediation of Rome, to quell their intestine commotions. The principal man who desired to subject his native country to the Roman dominion, was

one Bericus, who, by many arguments, persuaded the emperor to make a descent upon the island, magnifying the advantages that would attend the conquest of it. In pursuance of his advice, therefore, Plautius the prætor was ordered to pass over into Gaul, and make preparations for this great expedition. At first, indeed, his soldiers seemed backward to embark; declaring, that they were unwilling to make war beyond the limits of the world, for so they judged Britain to be. However, they were at last persuaded to go; and the Britons, under the conduct of their king Cynobelinus, were several times overthrown. And these successes soon after induced Claudius to go into Britain in person, upon pretence that the natives were still seditious, and had not delivered up some Roman fugitives who had taken shelter among them; but for a particular account of the exploits of the Romans in this island, see the article ENGLAND.

But though Claudius gave in the beginning of his reign the highest hopes of an happy continuance, he soon began to lessen his care for the public, and to commit to his favourites all the concerns of the empire. This weak prince was unable to act but under the direction of others. The chief of his directors was his wife Messalina: whose name is almost become a common appellation to women of abandoned characters. However, she was not less remarkable for her cruelties than her lusts; as by her intrigues she destroyed many of the most illustrious families of Rome. Subordinate to her were the emperor's freedmen; Pallas, the treasurer; Narcissus, the secretary of state; and Callistus, the master of the requests. These entirely governed Claudius; so that he was only left the fatigues of ceremony, while they were possessed of all the power of the state.

It would be tedious to enumerate the various cruelties which these insidious advisers obliged the feeble emperor to commit: those against his own family will suffice. Appius Silanus, a person of great merit, who had been married to the emperor's mother-in-law, was put to death upon the suggestions of Messalina. After him he slew both his sons-in-law, Silanus and Pompey, and his two nieces the Livias, one the daughter of Drusus, the other of Germanicus; and all without permitting them to plead in their defence, or even without assigning any cause for his displeasure. Great numbers of others fell a sacrifice to the jealousy of Messalina and her minions; who bore so great a sway in the state, that all offices, dignities, and governments, were entirely at their disposal. Every thing was put to sale: they took money for pardons and penalties; and accumulated, by these means, such vast sums, that the wealth of Cræsus was considered as nothing in comparison. One day, the emperor complaining that his exchequer was exhausted, he was ludicrously told, that it might be sufficiently replenished if his two freedmen would take him into partnership. Still, however, during such corruption, he regarded his favourites with the highest esteem, and even solicited the senate to grant them peculiar marks of their approbation. These disorders in the ministers of government did not fail to produce conspiracies against the emperor. Statius Corvinus and Gallus Asinius formed a conspiracy against him. Two knights, whose names are not told us, privately combined to assassinate him. But the revolt which

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Is induced
by his fa-
vourites to
commit
many acts
of cruelty.

Rome. which gave him the greatest uneasiness, and which was punished with the most unrelenting severity, was that of Camillus, his lieutenant-general in Dalmatia. This general, incited by many of the principal men of Rome, openly rebelled against him, and assumed the title of emperor. Nothing could exceed the terrors of Claudius, upon being informed of this revolt: his nature and his crimes had disposed him to be more cowardly than the rest of mankind; so that when Camillus commanded him by letters to relinquish the empire, and retire to a private station, he seemed inclined to obey. However, his fears upon this occasion were soon removed: for the legions which had declared for Camillus being terrified by some prodigies, shortly after abandoned him; so that the man whom but five days before they had acknowledged as emperor, they now thought it no infamy to destroy. The cruelty of Messalina and her minions upon this occasion seemed to have no bounds. They so wrought upon the emperor's fears and suspicions, that numbers were executed without trial or proof; and scarce any, even of those who were but suspected, escaped, unless by ransoming their lives with their fortunes.

By such cruelties as these, the favourites of the emperor endeavoured to establish his and their own authority: but in order to increase the necessity of their assistance, they laboured to augment the greatness of his terrors. He now became a prey to jealousy and inquietude. Being one day in the temple, and finding a sword that was left there by accident, he convened the senate in a fright, and informed them of his danger. After this he never ventured to go to any feast without being surrounded by his guards, nor would he suffer any man to approach him without a previous search. Thus wholly employed by his anxiety for self-preservation, he entirely left the care of the state to his favourites, who by degrees gave him a relish for slaughter. From this time he seemed delighted with inflicting tortures; and on a certain occasion continued a whole day at the city Tibur, waiting for an hangman from Rome, that he might feast his eyes with an execution in the manner of the ancients. Nor was he less regardless of the persons he condemned, than cruel in the infliction of their punishment. Such was his extreme stupidity, that he would frequently invite those to supper whom he had put to death but the day before; and often denied the having given orders for an execution, but a few hours after pronouncing sentence. Suetonius assures us, that there were no less than 35 senators, and above 300 knights, executed in his reign; and that such was his unconcern in the midst of slaughter, that one of the tribunes bringing him an account of a certain senator who was executed, he quite forgot his offence, but calmly acquiesced in his punishment.

In this manner was Claudius urged on by Messalina to commit cruelties, which he considered only as wholesome severities; while, in the mean time, she put no bounds to her enormities. The impunity of her past vices only increasing her confidence to commit new, her debaucheries became every day more notorious, and her lewdness exceeded what had ever been seen at Rome. She caused some women of the first quality to commit adultery in the presence of their husbands, and destroyed such as refused to comply. After appearing for

some years insatiable in her desires, she at length fixed her affections upon Caius Silius, the most beautiful youth in Rome. Her love for the young Roman seemed to amount even to madness. She obliged him to divorce his wife Junia Syllana, that she might entirely possess him herself. She obliged him to accept of immense treasures and valuable presents; cohabiting with him in the most open manner, and treating him with the most shameless familiarity. The very imperial ornaments were transferred to his house; and the emperor's slaves and attendants had orders to wait upon the adulterer. Nothing was wanting to complete the insolence of their conduct, but their being married together; and this was soon after effected. They relied upon the emperor's imbecility for their security, and only waited till he retired to Ostia to put their ill-judged project in execution. In his absence, they celebrated their nuptials with all the ceremonies and splendor which attend the most confident security. Messalina gave a loose to her passion, and appeared as a Bacchanalian with a thyrsus in her hand; while Silius assumed the character of Bacchus, his body being adorned with robes imitating ivy, and his legs covered with buskins. A troop of singers and dancers attended, who heightened the revel with the most lascivious songs and the most indecent attitudes. In the midst of this riot, one Valens, a buffoon, is said to have climbed a tree; and being demanded what he saw, answered that he perceived a dreadful storm coming from Ostia. What this fellow spoke at random was actually at that time in preparation. It seems that some time before there had been a quarrel between Messalina and Narcissus, the emperor's first freedman. This subtle minister therefore desired nothing more than an opportunity of ruining the empress, and he judged this to be a most favourable occasion. He first made the discovery by means of two concubines who attended the emperor, who were instructed to inform him of Messalina's marriage as the news of the day, while Narcissus himself stepped in to confirm their information. Finding it operated upon the emperor's fears as he could wish, he resolved to alarm him still more by a discovery of all Messalina's projects and attempts. He aggravated the danger, and urged the expediency of speedily punishing the delinquents. Claudius, quite terrified at so unexpected a relation, supposed the enemy were already at his gates; and frequently interrupted his freedman, by asking if he was still master of the empire. Being assured that he yet had it in his power to continue so, he resolved to go and punish the affront offered to his dignity without delay. Nothing could exceed the consternation of Messalina and her thoughtless companions, upon being informed that the emperor was coming to disturb their festivity. Every one retired in the utmost confusion. Silius was taken. Messalina took shelter in some gardens which she had lately seized upon, having expelled Asiaticus the true owner, and put him to death. From thence she sent Britannicus, her only son by the emperor, with Octavia her daughter, to intercede for her, and implore his mercy. She soon after followed them herself; but Narcissus had so fortified the emperor against her arts, and contrived such methods of diverting his attention from her defence, that she was obliged to return in despair. Narcissus being thus far successful, led Claudius

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Rome. to the house of the adulterer, there showing him the apartments adorned with the spoils of his own palace; and then conducting him to the prætorian camp, revived his courage by giving him assurances of the readiness of the soldiers to defend him. Having thus artfully wrought upon his fears and repentment, the wretched Silius was commanded to appear; who, making no defence, was instantly put to death in the emperor's presence. Several others shared the same fate; but Messalina still flattered herself with hopes of pardon. She resolved to leave neither prayers nor tears unattempted to appease the emperor. She sometimes even gave a loose to her repentment, and threatened her accusers with vengeance. Nor did she want ground for entertaining the most favourable expectations. Claudius having returned from the execution of her paramour, and having allayed his repentment in a banquet, began to relent. He now therefore commanded his attendants to apprise that miserable creature, meaning Messalina, of his resolution to hear her accusation the next day, and ordered her to be in readiness with her defence. The permission to defend herself would have been fatal to Narcissus; wherefore he rushed out, and ordered the tribunes and centurions who were in readiness to execute her immediately by the emperor's command. Claudius was informed of her death in the midst of his banquet; but this insensible idiot showed not the least appearance of emotion. He continued at table with his usual tranquillity; and the day following, while he was sitting at dinner, he asked why Messalina was absent, as if he had totally forgotten her crimes and her punishment.

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She is put
to death.

Claudius being now a widower, declared publicly, that as he had hitherto been unfortunate in his marriages, he would remain single for the future, and that he would be contented to forfeit his life in case he broke his resolution. However, the resolutions of Claudius were but of short continuance. Having been accustomed to live under the controul of women, his present freedom was become irksome to him, and he was entirely unable to live without a director. His freedmen therefore perceiving his inclinations, resolved to procure him another wife; and, after some deliberation, they fixed upon Agrippina, the daughter of his brother Germanicus. This woman was more practised in vice than even the former empress. Her cruelties were more dangerous, as they were directed with greater caution: she had poisoned her former husband, to be at liberty to attend the calls of ambition; and, perfectly acquainted with all the infirmities of Claudius, only made use of his power to advance her own. However, as the late declaration of Claudius seemed to be an obstacle to his marrying again, persons were suborned to move in the senate, that he should be compelled to take a wife, as a matter of great importance to the commonwealth; and some more determined flatterers than the rest left the house, as with a thorough resolution, that instant, to constrain him. When this decree passed in the senate, Claudius had scarce patience to contain himself a day before the celebration of his nuptials. However, such was the detestation in which the people in general held these incestuous matches, that though they were made lawful, yet only one of his tribunes, and one of his freedmen, followed his example.

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The emper-
or marries
Agrippina,

Claudius having now received a new director, sub-

Rome. mitted with more implicit obedience than in any former part of his reign. Agrippina's chief aims were to gain the succession in favour of her own son Nero, and to set aside the claims of young Britannicus, son to the emperor and Messalina. For this purpose she married Nero to the emperor's daughter Octavia, a few days after her own marriage. Not long after this, she urged the emperor to strengthen the succession, in imitation of his predecessors, by making a new adoption; and caused him take in her son Nero, in some measure to divide the fatigues of government. Her next care was to increase her son's popularity, by giving him Seneca for a tutor. This excellent man, by birth a Spaniard, had been banished by Claudius, upon the false testimony of Messalina, who had accused him of adultery with Julia the emperor's niece. The people loved and admired him for his genius, but still more for his strict morality; and a part of his reputation necessarily devolved to his pupil. This subtle woman was not less assiduous in pretending the utmost affection for Britannicus; whom, however, she resolved in a proper time to destroy: but her jealousy was not confined to this child only; she, shortly after her accession, procured the deaths of several ladies who had been her rival in the emperor's affections. She displaced the captains of the guard, and appointed Burrhus to that command; a person of great military knowledge, and strongly attached to her interests. From that time she took less pains to disguise her power, and frequently entered the Capitol in a chariot; a privilege which none before were allowed, except of the sacerdotal order.

In the 12th year of this monarch's reign, she persuaded him to restore liberty to the Rhodians, of which he had deprived them some years before; and to remit the taxes of the city Ilium, as having been the progenitors of Rome. Her design in this was to increase the popularity of Nero, who pleaded the cause of both cities with great approbation. Thus did this ambitious woman take every step to aggrandize her son, and was even contented to become hateful herself to the public, merely to increase his popularity.

Such a very immoderate abuse of her power served at last to awaken the emperor's suspicions. Agrippina's imperious temper began to grow insupportable to him; and he was heard to declare, when heated with wine, that it was his fate to suffer the disorders of his wives, and to be their executioner. This expression sunk deep on her mind, and engaged all her faculties to prevent the blow. Her first care was to remove Narcissus, whom she hated upon many accounts, but particularly for his attachment to Claudius. This minister, for some time, opposed her designs; but at length thought fit to retire, by a voluntary exile, into Campania. The unhappy emperor, thus exposed to all the machinations of his insidious consort, seemed entirely regardless of the dangers that threatened his destruction. His affection for Britannicus was perceived every day to increase, which served also to increase the vigilance and jealousy of Agrippina. She now, therefore, resolved not to defer a crime which she had meditated a long while before; namely, that of poisoning her husband. She for some time, however, debated with herself in what manner she should administer the poison; as she feared too strong a dose would discover her treachery, and one too weak might fail of its effect.

Rome. At length she determined upon a poison of singular efficacy to destroy his intellects, and yet not suddenly to terminate his life. As she had been long conversant in this horrid practice, she applied to a woman called *Locusta*, notorious for assisting on such occasions. The poison was given to the emperor among mushrooms, a dish he was particularly fond of. Shortly after having eaten, he dropped down insensible; but this caused no alarm, as it was usual with him to sit eating till he had stupified all his faculties, and was obliged to be carried off to his bed from the table. However, his constitution seemed to overcome the effects of the poison, when Agrippina resolved to make sure of him: wherefore she directed a wretched physician, who was her creature, to thrust a poisoned feather down his throat, under pretence of making him vomit; and this dispatched him.

297 whom is poi- ned. The reign of the emperor, feeble and impotent as he was, produced no great calamities in the state, since his cruelties were chiefly levelled at those about his person. The list of the inhabitants of Rome at this time amounted to six millions eight hundred and forty-four thousand souls; a number little inferior to all the people of England at this day. The general character of the times was that of corruption and luxury: but the military spirit of Rome, though much relaxed from its former severity, still continued to awe mankind; and though during this reign, the empire might be justly said to be without a head, yet the terror of the Roman name alone kept the nations in obedience.

Claudius being destroyed, Agrippina took every precaution to conceal his death from the public, until she had settled her measures for securing the succession. A strong guard was placed at all the avenues of the palace, while she amused the people with various reports; at one time giving out that he was still alive; at another, that he was recovering. In the meanwhile, she made sure of the person of young Britannicus, under a pretence of affection for him. Like one overcome with the extremity of her grief, she held the child in her arms, calling him the dear image of his father, and thus preventing his escape. She used the same precautions with regard to his sisters, Octavia and Antonia; and even ordered an entertainment in the palace, as if to amuse the emperor. At last, when all things were adjusted, the palace-gates were thrown open, and Nero, accompanied by Burrhus, prefect of the Prætorian guards, issued to receive the congratulations of the people and the army. The cohorts then attending, proclaimed him with the loudest acclamations, though not without making some inquiries after Britannicus. He was carried in a chariot to the rest of the army; wherein having made a speech proper to the occasion, and promising them a donation, in the manner of his predecessors, he was declared emperor by the army, the senate, and the people.

298 to suc- ds to the pire. Nero's first care was, to show all possible respect to the deceased emperor, in order to cover the guilt of his death. His obsequies were performed with a pomp equal to that of Augustus: the young emperor pronounced his funeral oration, and he was canonized among the gods. The funeral oration, though spoken by Nero, was drawn up by Seneca; and it was remarked, that this was the first time a Roman emperor needed the assistance of another's eloquence.

Nero, though but 17 years of age, began his reign with the general approbation of mankind. As he owed the empire to Agrippina, so in the beginning he submitted to her directions with the most implicit obedience. On her part, she seemed resolved on governing with her natural ferocity, and considered her private animosities as the only rule to guide her in public justice. Immediately after the death of Claudius, she caused Silanus, the pro-consul of Asia, to be assassinated upon very slight suspicions, and without ever acquainting the emperor with her design. The next object of her resentment was Narcissus, the late emperor's favourite; a man equally notorious for the greatness of his wealth and the number of his crimes. He was obliged to put an end to his life by Agrippina's order, though Nero refused his consent.

This bloody onset would have been followed by many severities of the same nature, had not Seneca and Burrhus, the emperor's tutor and general, opposed. These worthy men, although they owed their rise to the empress, were above being the instruments of her cruelty. They, therefore, combined together in an opposition; and gaining the young emperor on their side, formed a plan of power, at once the most merciful and wise. The beginning of this monarch's reign, while he continued to act by their counsels, has always been considered as a model for succeeding princes to govern by. The famous emperor Trajan used to say, "That for the first five years of this prince all other governments came short of his." In fact, the young monarch knew so well how to conceal his innate depravity, that his nearest friends could scarce perceive his virtues to be but assumed. He appeared just, liberal, and humane. When a warrant for the execution of a criminal was brought to him to be signed, he was heard to cry out, with seeming concern, "Would to Heaven that I had never learned to write!" The senate, upon a certain occasion, giving him their applause for the regularity and justice of his administration; he replied with singular modesty, "That they should defer their thanks till he had deserved them." His condescension and affability were not less than his other virtues; so that the Romans began to think, that the clemency of this prince would compensate for the tyranny of his predecessors.

In the mean time, Agrippina, who was excluded from any share in government, attempted, by every possible method, to maintain her declining power. Perceiving that her son had fallen in love with a freed-woman, named *Acte*, and dreading the influence of a concubine, she tried every art to prevent his growing passion. However, in so corrupt a court, it was no difficult matter for the emperor to find other confidants ready to assist him in his wishes. The gratification of his passion, therefore, in this instance, only served to increase his hatred for the empress. Nor was it long before he gave evident marks of his disobedience, by displacing Pallas her chief favourite. It was upon this occasion that she first perceived the total declension of her authority; which threw her into the most ungovernable fury. In order to give terror to her rage, she proclaimed that Britannicus, the real heir to the throne, was still living, and in a condition to receive his father's empire, which was now possessed by an usurper. She threatened to go to the camp, and there

Rome.

299 His excel-| |
lent admi-
nistration
for five
years.

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He pro-
vokes his
mother.

Rome. there expose his baseness and her own, invoking all the furies to her assistance. These menaces served to alarm the suspicions of Nero; who, though apparently guided by his governors, yet had begun to give way to his natural depravity. He, therefore, determined upon the death of Britannicus, and contrived to have him poisoned at a public banquet. Agrippina, however, still retained her natural ferocity: she took every opportunity of obliging and flattering the tribunes and centurions; she heaped up treasures with a rapacity beyond her natural avarice; all her actions seemed calculated to raise a faction, and make herself formidable to the emperor. Whereupon Nero commanded her German guard to be taken from her, and obliged her to lodge out of the palace. He also forbid particular persons to visit her, and went himself but rarely and ceremoniously to pay her his respects. She now, therefore, began to find, that, with the emperor's favour, she had lost the assiduity of her friends. She was even accused by Silana of conspiring against her son, and of designing to marry Plantius, a person descended from Augustus, and of making him emperor. A short time after, Pallas, her favourite, together with Burrhus, were arraigned for a similar offence, and intending to set up Cornelius Sylla. These informations being proved void of any foundation, the informers were banished; a punishment which was considered as very inadequate to the greatness of the offence.

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Shameful
behaviour
of the em-
peror.

As Nero increased in years, his crimes seemed to increase in equal proportion. He now began to find a pleasure in running about the city by night, disguised like a slave. In this vile habit he entered taverns and brothels, attended by the lewd ministers of his pleasures, attempting the lives of such as opposed him, and frequently endangering his own. In imitation of the emperor's example, numbers of profligate young men infested the streets likewise; so that every night the city was filled with tumult and disorder. However, the people bore all these levities, which they ascribed to the emperor's youth, with patience, having occasion every day to experience his liberality, and having also been gratified by the abolition of many of their taxes. The provinces also were no way affected by these riots; for except disturbances on the side of the Parthians, which were soon suppressed, they enjoyed the most perfect tranquillity.

But those sensualities, which, for the first four years of his reign, produced but few disorders, in the fifth became alarming. He first began to transgress the bounds of decency, by publicly abandoning Octavia, his present wife, and then by taking Poppea, the wife of his favourite Otho, a woman more celebrated for her beauty than her virtues. This was another grating circumstance to Agrippina, who vainly used all her interest to disgrace Poppea, and reinstate herself in her son's lost favour. Historians assert, that she even offered to satisfy his passion herself, by an incestuous compliance; and that, had not Seneca interposed, the son would have joined in the mother's crime. This, however, does not seem probable, since we find Poppea victorious, soon after, in the contention of interests; and at last impelling Nero to parricide, to satisfy her revenge. She began her arts by urging him to divorce his present wife, and marry herself: she reproached him as a pupil, who wanted not only power over others, but

liberty to direct himself. She insinuated the dangerous designs of Agrippina; and, by degrees, accustomed his mind to reflect on parricide without horror. His cruelties against his mother began rather by various circumstances of petty malice than by any downright injury. He encouraged several persons to tease her with litigious suits; and employed some of the meanest of the people to sing satirical songs against her, under her windows: but, at last, finding these ineffectual in breaking her spirit, he resolved on putting her to death. His first attempt was by poison; but this, though twice repeated, proved ineffectual, as she had fortified her constitution against it by antidotes. This failing, a ship was contrived in so artificial a manner as to fall to pieces in the water; on board of which she was invited to sail to the coasts of Calabria. However, this plot was as ineffectual as the former: the mariners, not being apprised of the secret, disturbed each other's operations; so that the ship not sinking as readily as was expected, Agrippina found means to continue swimming, till she was taken up by some trading vessels passing that way. Nero finding all his machinations were discovered, resolved to throw off the mask, and put her openly to death, without further delay. He therefore caused a report to be spread, that she had conspired against him, and that a poniard was dropped at his feet by one who pretended a command from Agrippina to assassinate him. In consequence of this, he applied to his governors Seneca and Burrhus, for their advice how to act, and their assistance in ridding him of his fears. Things were now come to such a crisis, that no middle way could be taken; and either Nero or Agrippina was to fall. Seneca, therefore, kept a profound silence; while Burrhus, with more resolution, refused to be perpetrator of so great a crime; alleging, that the army was entirely devoted to all the descendants of Cæsar, and would never be brought to imbrue their hands in the blood of any of his family. In this embarrassment, Anicetus, the contriver of the ship above-mentioned, offered his services; which Nero accepted with the greatest joy, crying out, "That then was the first moment he ever found himself an emperor." This freedman, therefore, taking with him a body of soldiers, surrounded the house of Agrippina, and then forced open the doors. The executioners having dispatched her with several wounds, left her dead on the couch, and went to inform Nero of what they had done. Some historians say, that Nero came immediately to view the body; that he continued to gaze upon it with pleasure, and ended his horrid survey, by coolly observing, that he never thought his mother had been so handsome.—However this be, he vindicated his conduct next day to the senate; who not only excused, but applauded his impiety.

All the bounds of virtue being thus broken down, Nero now gave a loose to his appetites, that were not only sordid but inhuman. There seemed an odd conjunction of folly and meanness in his disposition; for while he practised cruelties which were sufficient to make the mind shudder with horror, he was fond of those amusing arts that soften and refine the heart. He was particularly addicted, even from childhood, to music, and not totally ignorant of poetry. But chariot-driving was his favourite pursuit. He never missed the circus, when chariot-races were to be exhibited there; appearing at first privately, and

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Rome. Soon after publicly; till at last, his passion increasing by indulgence, he was not content with being merely a spectator, but resolved to become one of the principal performers. His governors, however, did all in their power to restrain this perverted ambition; but finding him resolute, they inclosed a space of ground in the valley of the Vatican, where he first exhibited only to some chosen spectators, but shortly after invited the whole town. The praises of his flattering subjects only stimulated him still more to these unbecoming pursuits; so that he now resolved to assume a new character, and to appear as a singer upon the stage.

His passion for music, as was observed, was no less natural to him than the former; but as it was less manly, so he endeavoured to defend it by the example of some of the most celebrated men, who practised it with the same fondness. He had been instructed in the principles of this art from his childhood; and upon his advancement to the empire, he had put himself under the most celebrated masters. He patiently submitted to their instructions, and used all those methods which singers practise, either to mend the voice, or improve its volubility. Yet, notwithstanding all his assiduity, his voice was but a wretched one, being both feeble and unpleasant. However, he was resolved to produce it to the public, such as it was; for flattery, he knew, would supply every deficiency. His first public appearance was at games of his own institution, called *juveniles*; where he advanced upon the stage, tuning his instrument to his voice with great appearance of skill. A group of tribunes and centurions attended behind him; when his old governor Burrhus stood by his hopeful pupil, with indignation in his countenance, and praises on his lips.

He was desirous also of becoming a poet: but he was unwilling to undergo the pain of study, which a proficiency in that art requires; he was desirous of being a poet ready made. For this purpose, he got together several persons, who were considered as great wits at court, though but very little known as such to the public. These attended him with verses which they had composed at home, or which they blabbed out extemporaneously; and the whole of their compositions being tacked together, by his direction, was called a *poem*. Nor was he without his philosophers also; he took a pleasure in hearing their debates after supper, but he heard them merely for his amusement.

Furnished with such talents as these for giving pleasure, he was resolved to make the tour of his empire, and give the most public display of his abilities wherever he came. The place of his first exhibition, upon leaving Rome, was Naples. The crowds there were so great, and the curiosity of the people so earnest in hearing him, that they did not perceive an earthquake that happened while he was singing. His desire of gaining the superiority over the other actors was truly ridiculous: he made interest with his judges, reviled his competitors, formed private factions to support him, all in imitation of those who got their livelihood upon the stage. While he continued to perform, no man was permitted to depart from the theatre, upon any pretence whatsoever. Some were so fatigued with hearing him, that they leaped privately from the walls, or pretended to fall into fainting fits, in order to be

carried out. Nay, it is said, that several women were delivered in the theatre. Soldiers were placed in several parts to observe the looks and gestures of the spectators, either to direct them where to point their applause, or restrain their displeasure. An old senator, named *Vespasian*, afterwards emperor, happening to fall asleep upon one of these occasions, very narrowly escaped with his life.

After being fatigued with the praises of his countrymen, Nero resolved upon going over into Greece, to receive new theatrical honours. The occasion was this. The cities of Greece had made a law to send him the crowns from all the games; and deputies were accordingly dispatched with this (to him) important embassy. As he one day entertained them at his table in the most sumptuous manner, and conversed with them with the utmost familiarity, they intreated to hear him sing. Upon his complying, the artful Greeks testified all the marks of ecstacy and rapture. Applauses so warm were peculiarly pleasing to Nero: he could not refrain from crying out, That the Greeks alone were worthy to hear him; and accordingly prepared without delay to go into Greece, where he spent the whole year ensuing. In this journey, his retinue resembled an army in number; but it was only composed of singers, dancers, taylor, and other attendants upon the theatre. He passed over all Greece, and exhibited at all their games, which he ordered to be celebrated in one year. At the Olympic games he resolved to show the people something extraordinary; wherefore, he drove a chariot with 10 horses; but being unable to sustain the violence of the motion, he was driven from his seat. The spectators, however, gave their unanimous applause, and he was crowned as conqueror. In this manner he obtained the prize at the Isthmian, Pythian, and Nemean games. The Greeks were not sparing of their crowns; he obtained 1800 of them. An unfortunate singer happened to oppose him on one of these occasions, and exerted all the powers of his art, which, it appears, were prodigious. But he seems to have been a better singer than a politician; for Nero ordered him to be killed on the spot. Upon his return from Greece, he entered Naples, through a breach in the walls of the city, as was customary with those who were conquerors in the Olympic games. But all the splendor of his return was reserved for his entry into Rome. There he appeared seated in the chariot of Augustus, dressed in robes of purple, and crowned with wild olive, which was the Olympic garland. He bore in his hand the Pythian crown, and had 1100 more carried before him.— Beside him sat one Diodorus, a musician; and behind him followed a band of singers, as numerous as a legion, who sung in honour of his victories. The senate, the knights, and the people, attended this puerile pageant, filling the air with their acclamations. The whole city was illuminated, every street smoked with incense; wherever he passed, victims were slain; the pavement was strewn with saffron, while garlands of flowers, ribbons, fowls, and pasties, (for so we are told), were showered down upon him from the windows as he passed along. So many honours only inflamed his desires of acquiring new; he at last began to take lessons in wrestling; willing to imitate Hercules in strength, as he had rivalled Apollo in activity. He also caused a lion

Rome. lion of pasteboard to be made with great art, against which he undauntedly appeared in the theatre, and struck it down with a blow of his club.

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Burning of
Rome. But his cruelties even outdid all his other extravagancies, a complete list of which would exceed the limits of the present article. He was often heard to observe, that he had rather be hated than loved. When one happened to say in his presence, That the world might be burned when he was dead: "Nay," replied Nero, "let it be burnt while I am alive." In fact, a great part of the city of Rome was consumed by fire shortly after. This remarkable conflagration took place in the 11th year of Nero's reign. The fire began among certain shops, in which were kept such goods as were proper to feed it; and spread every way with such amazing rapidity, that its havoc was felt in distant streets, before any measures to stop it could be tried. Besides an infinite number of common houses, all the noble monuments of antiquity, all the stately palaces, temples, porticoes, with goods, riches, furniture, and merchandize, to an immense value, were devoured by the flames, which raged first in the low regions of the city, and then mounted to the higher with such terrible violence and impetuosity, as to frustrate all relief. The shrieks of the women, the various efforts of some endeavouring to save the young and tender, of others attempting to assist the aged and infirm, and the hurry of such as strove only to provide for themselves, occasioned a mutual interruption and universal confusion. Many, while they chiefly regarded the danger that pursued them from behind, found themselves suddenly involved in the flames before and on every side. If they escaped into the quarters adjoining, or into the parts quite remote, there too they met with the devouring flames. At last, not knowing whither to fly, nor where to seek sanctuary, they abandoned the city, and repaired to the open fields. Some, out of despair for the loss of their whole substance, others, through tenderness for their children and relations, whom they had not been able to snatch from the flames, suffered themselves to perish in them, though they might easily have found means to escape. No man dared to stop the progress of the fire, there being many who had no other business but to prevent with repeated menaces all attempts of that nature; nay, some were, in the face of the public, seen to throw lighted fire-brands into the houses, loudly declaring that they were authorized so to do; but whether this was only a device to plunder more freely, or in reality they had such orders, was never certainly known.

Nero, who was then at Antium, did not offer to return to the city, till he heard that the flames were advancing to his palace, which, after his arrival, was, in spite of all opposition, burnt down to the ground, with all the houses adjoining to it. However, Nero, affecting compassion for the multitude, thus vagabond and bereft of their dwellings, laid open the field of Mars, and all the great edifices erected there by Agrippa, and even his own gardens. He likewise caused tabernacles to be reared in haste for the reception of the forlorn populace; from Ostia, too, and the neighbouring cities, were brought, by his orders, all sorts of furniture and necessaries, and the price of corn was considerably lessened. But these bounties, however generous and popular, were bestowed in vain, because a report was spread abroad, that, during the time of this gene-

ral conflagration, he mounted his domestic stage, and sung the destruction of Troy, comparing the present desolation to the celebrated calamities of antiquity. At length, on the sixth day, the fury of the flames was stopped at the foot of mount Esquiline, by levelling with the ground an infinite number of buildings; so that the fire found nothing to encounter but the open fields and empty air.

But scarce had the late alarm ceased, when the fire broke out anew with fresh rage, but in places more wide and spacious; whence fewer persons were destroyed, but more temples and public porticoes were overthrown. As this second conflagration broke out in certain buildings belonging to Tigellinus, they were both generally ascribed to Nero; and it was conjectured, that, by destroying the old city, he aimed at the glory of building a new one, and calling it by his name. Of the fourteen quarters into which Rome was divided, four remained entire, three were laid in ashes, and, in the seven others, there remained here and there a few houses, miserably shattered, and half consumed. Among the many ancient and stately edifices, which the rage of the flames utterly consumed, Tacitus reckons the temple dedicated by Servius Tullius to the Moon; the temple and great altar consecrated by Evander to Hercules; the chapel vowed by Romulus to Jupiter Stator; the court of Numa, with the temple of Vesta, and in it the tutelar gods peculiar to the Romans. In the same fate were involved the inestimable treasures acquired by so many victories, the wonderful works of the best painters and sculptors of Greece, and, what is still more to be lamented, the ancient writings of celebrated authors, till then preserved perfectly entire. It was observed, that the fire began the same day on which the Gauls, having formerly taken the city, burnt it to the ground.

Upon the ruins of the demolished city, Nero founded a palace, which he called his *golden house*; though it was not so much admired on account of an immense profusion of gold, precious stones, and other inestimable ornaments, as for its vast extent, containing spacious fields, large wildernesses, artificial lakes, thick woods, orchards, vineyards, hills, groves, &c. The entrance of this stately edifice was wide enough to receive a colossus, representing Nero, 120 feet high: the galleries, which consisted of three rows of tall pillars, were each a full mile in length; the lakes were encompassed with magnificent buildings, in the manner of cities; and the woods stocked with all manner of wild beasts. The house itself was tiled with gold: the walls were covered with the same metal, and richly adorned with precious stones and mother-of-pearl, which in those days was valued above gold: the timber-work and ceilings of the rooms were inlaid with gold and ivory: the roof of one of the banqueting-rooms resembled the firmament both in its figure and motion, turning incessantly about night and day, and showering all sorts of sweet waters. When this magnificent structure was finished, Nero approved of it only so far as to say, that at length he began to lodge like a man. Pliny tells us, that this palace extended quite round the city. Nero, it seems, did not finish it; for the first order Otho signed was, as we read in Suetonius, for fifty millions of sesterces to be employed in perfecting the golden palace which Nero had begun.

Rome.

306
Nero's golden palace.

The

Rome. The projectors of the plan were Severus and Celer, two bold and enterprising men, who soon after put the emperor upon a still more expensive and arduous undertaking, namely, that of cutting a canal through hard rocks and steep mountains, from the lake Avernus to the mouth of the Tiber, 160 miles in length, and of such breadth that two galleys of five ranks of oars might easily pass abreast. His view in this was to open a communication between Rome and Campania, free from the troubles and dangers of the sea; for, this very year, a great number of vessels laden with corn were shipwrecked at Misenum, the pilots choosing rather to venture out in a violent storm, than not to arrive at the time they were expected by Nero. For the executing of this great undertaking, the emperor ordered the prisoners from all parts to be transported into Italy; and such as were convicted, whatever their crimes were, to be condemned only to his works. Nero, who undertook nothing with more ardour and readiness than what was deemed impossible, expended incredible sums in this rash undertaking, and exerted all his might to cut through the mountains adjoining to the lake Avernus; but, not being able to remove by art the obstacles of nature, he was in the end obliged to drop the enterprise.

308 Rome re-uilt. The ground that was not taken up by the foundations of Nero's own palace, he assigned for houses, which were not placed, as after the burning of the city by the Gauls, at random, and without order; but the streets were laid out regularly, spacious and straight; the edifices restrained to a certain height, perhaps of 70 feet, according to the plan of Augustus; the courts were widened; and to all the great houses which stood by themselves, and were called *illes*, large porticoes were added, which Nero engaged to raise at his own expence, and to deliver to each proprietor the squares about them clear from all rubbish. He likewise promised rewards according to every man's rank and substance; and fixed a day for the performance of his promise, on condition that against that day their several houses and palaces were finished. He moreover made the following wise regulations to obviate such a dreadful calamity for the future; to wit, That the new buildings should be raised to a certain height without timber; that they should be arched with stone from the quarries of Gabii and Alba, which were proof against fire; that over the common springs, which were diverted by private men for their own uses, overseers should be placed to prevent that abuse; that every citizen should have ready in his house some machine proper to extinguish the fire; that no wall should be common to two houses, but every house be inclosed within its own peculiar walls, &c. Thus the city in a short time rose out of its ashes with new lustre, and more beautiful than ever. However, some believed, that the ancient form was more conducing to health, the rays of the sun being hardly felt on account of the narrowness of the streets; and the height of the buildings, whereas now there was no shelter against the scorching heat. We are told, that Nero designed to extend the walls to Ostia, and to bring from thence by a canal the sea into the city.

The emperor used every art to throw the odium of this conflagration upon the Christians, who were at that time gaining ground in Rome. Nothing could

be more dreadful than the persecution raised against them upon this false accusation, of which an account is given under the article *Ecclesiastical History*. Hitherto, however, the citizens of Rome seemed comparatively exempted from his cruelties, which chiefly fell upon strangers and his nearest connections; but a conspiracy formed against him by Piso, a man of great power and integrity, which was prematurely discovered, opened a new train of suspicions that destroyed many of the principal families in Rome. This conspiracy, in which several of the chief men of the city were concerned, was first discovered by the indiscreet zeal of a woman named *Epicharis*, who, by some means now unknown, had been let into the plot, which she revealed to Volusius, a tribune, in order to prevail upon him to be an accomplice. Volusius, instead of coming into her design, went and discovered what he had learned to Nero, who immediately put *Epicharis* in prison. Soon after, a freedman belonging to *Scænius*, one of the accomplices, made a farther discovery. The conspirators were examined apart; and as their testimonies differed, they were put to the torture. *Natalis* was the first who made a confession of his own guilt and that of many others. *Scænius* gave a list of the conspirators still more ample. *Lucan*, the poet, was amongst the number; and he, like the rest, in order to save himself, still farther enlarged the catalogue, naming, among others, *Attila*, his own mother. *Epicharis* was now, therefore, again called upon and put to the torture; but her fortitude was proof against all the tyrant's cruelty; neither scourging nor burning, nor all the malicious methods used by the executioners, could extort the smallest confession. She was therefore remanded to prison, with orders to have her tortures renewed the day following. In the meantime, she found an opportunity of strangling herself with her handkerchief, by hanging it against the back of her chair. On the discoveries already made, *Piso*, *Lateranus*, *Fennius Rufus*, *Subrius Flavius*, *Salpicius Asper*, *Vestinus* the consul, and numberless others, were all executed without mercy. But the two most remarkable personages who fell on this occasion were *Seneca* the philosopher, and *Lucan* the poet, who was his nephew. It is not certainly known whether *Seneca* was really concerned in this conspiracy or not.— This great man had for some time perceived the outrageous conduct of his pupil; and, finding himself incapable of controuling his savage disposition, had retired from court into solitude and privacy. However, his retreat did not now protect him; for Nero, either having real testimony against him, or else hating him for his virtues, sent a tribune to inform him that he was suspected as an accomplice, and soon after sent him an order to put himself to death, with which he complied.

In this manner was the whole city filled with slaughter, and frightful instances of treachery. No master was secure from the vengeance of his slaves, nor even parents from the baser attempts of their children. Not only throughout Rome, but the whole country round, bodies of soldiers were seen in pursuit of the suspected, and the guilty. Whole crowds of wretches loaded with chains were led every day to the gates of the palace, to wait their sentence from the tyrant's own lips. He always presided at the torture in person, attended by *Tigellinus*,

Rome.

309 The conspiracy of Piso.

Rome. gellinus, captain of the guard, who, from being the most abandoned man in Rome, was now become his principal minister and favourite.

Nor were the Roman provinces in a better situation than the capital city. The example of the tyrant seemed to influence his governors, who gave instances not only of their rapacity, but of their cruelty, in every part of the empire. In the seventh year of his reign, the Britons revolted, under the conduct of their queen Boadicea* ; but were at last so completely defeated, that ever after, during the continuance of the Romans among them, they lost not only all hopes, but even all desire of freedom.

† See Eng-
land.

310
Success
against the
Parthians,
&c.

A war also was carried on against the Parthians for the greatest part of this reign, conducted by Corbulo ; who, after many successes, had dispossessed Tiridates, and settled Tigranes in Armenia in his room. Tiridates, however, was soon after restored by an invasion of the Parthians into that country ; but being once more opposed by Corbulo, the Romans and Parthians came to an agreement, that Tiridates should continue to govern Armenia, upon condition that he should lay down his crown at the feet of the emperor's statue, and receive it as coming from him ; all which he shortly after performed. A ceremony, however, which Nero desired to have repeated to his person ; wherefore by letters and promises he invited Tiridates to Rome, granting him the most magnificent supplies for his journey. Nero attended his arrival with very sumptuous preparations. He received him seated on a throne, accompanied by the senate standing round him, and the whole army drawn out with all imaginable splendor. — Tiridates ascended the throne with great reverence ; and approaching the emperor fell down at his feet, and in the most abject terms acknowledged himself his slave. Nero raised him up, telling him with equal arrogance, that he did well, and that by his submission he had gained a kingdom which his ancestors could never acquire by their arms. He then placed the crown on his head, and, after the most costly ceremonies and entertainments, he was sent back to Armenia, with incredible sums of money to defray the expences of his return.

311
Revolt of
the Jews.

In the 12th year of this emperor's reign, the Jews also revolted, having been severely oppressed by the Roman governor. It is said that Florus, in particular, was arrived at that degree of tyranny, that by public proclamation he gave permission to plunder the country, provided he received half the spoil. These oppressions drew such a train of calamities after them, that the sufferings of all other nations were slight in comparison to what this devoted people afterwards endured, as is related under the article Jews. In the mean time, Nero proceeded in his cruelties at Rome with unabated severity.

The valiant Corbulo, who had gained so many victories over the Parthians, could not escape his fury. Nor did the empress Poppæa herself escape ; whom, in a fit of anger, he kicked when she was pregnant, by which she miscarried and died. At last the Romans began to grow weary of such a monster, and there appeared a general revolution in all the provinces.

312
The first
Vindex in
Gaul,

The first appeared in Gaul, under Julius Vindex, who commanded the legions there, and publicly protested against the tyrannical government of Nero. He appeared to have no other motive for this revolt than that

of freeing the world from an oppressor ; for when it was told him that Nero had set a reward upon his head of 10,000,000 of sesterces, he made this gallant answer, " Whoever brings me Nero's head, shall, if he pleases, have mine." But still more to show that he was not actuated by motives of private ambition, he proclaimed Sergius Galba emperor, and invited him to join in the revolt. Galba, who was at that time governor of Spain, was equally remarkable for his wisdom in peace and his courage in war. But as all talents under corrupt princes are dangerous, he for some years had seemed willing to court obscurity, giving himself up to an inactive life, and avoiding all opportunities of signalizing his valour. He now therefore, either through the caution attending old age, or from a total want of ambition, appeared little inclined to join with Vindex, and continued for some time to deliberate with his friends on the part he should take.

In the mean time, Nero, who had been apprised of the proceedings against him in Gaul, appeared totally regardless of the danger, privately flattering himself that the suppression of this revolt would give him an opportunity of fresh confiscations. But the actual revolt of Galba, the news of which arrived soon after, affected him in a very different manner. The reputation of that general was such, that from the moment he declared against him, Nero considered himself as undone. He received the account as he was at supper ; and instantly, struck with terror, overturned the table with his foot, breaking two crystal vases of immense value. He then fell into a swoon ; from which when he recovered he tore his clothes, and struck his head, crying out, " that he was utterly undone." He then began to meditate slaughters more extensive than he yet had committed. He resolved to massacre all the governors of provinces, to destroy all exiles, and to murder all the Gauls in Rome, as a punishment for the treachery of their countrymen. In short, in the wildness of his rage, he thought of poisoning the whole senate, of burning the city, and turning the lions kept for the purposes of the theatre out upon the people. * These designs being impracticable, he resolved at last to face the danger in person. But his very preparations served to mark the insatiation of his mind. His principal care was, to provide waggons for the convenient carriage of his musical instruments ; and to dress out his concubines like Amazons, with whom he intended to face the enemy. He also made a resolution, that if he came off with safety and empire, he would appear again upon the theatre with the lute, and would equip himself as a pantomime.

While Nero was thus frivolously employed, the revolt became general. Not only the armies in Spain and Gaul, but also the legions in Germany, Africa, and Lusitania, declared against him. Virginius Rufus alone, who commanded an army on the Upper Rhine, for a while continued in suspense ; during which his forces, without his permission, falling upon the Gauls, routed them with great slaughter, and Vindex slew himself. But this ill success no way advanced the interests of Nero ; he was so detested by the whole empire, that he could find none of the armies faithful to him, however they might disagree with each other. He therefore called for Lœcusta to furnish him with poison ; and, thus prepared for the worst, he retired to the Servilian gardens,

Rome.

313
And of
Galba.

314
Miserable
situation of
Nero.

dens, with a resolution of flying into Egypt. He accordingly dispatched the freedmen, in which he had the most confidence, to prepare a fleet at Ostia; and in the meanwhile founded, in person, the tribunes and centurions of the guard, to know if they were willing to share his fortunes. But they all excused themselves, under divers pretexts. One of them had the boldness to answer him by part of a line from Virgil: *Usque adeone miserum est mori?* "Is death then such a misfortune?" Thus destitute of every resource, all the expedients that cowardice, revenge, or terror could produce, took place in his mind by turns. He at one time resolved to take refuge among the Parthians; at another, to deliver himself up to the mercy of the insurgents: one while, he determined to mount the rostrum, to ask pardon for what was past, and to conclude with promises of amendment for the future. With these gloomy deliberations he went to bed; but waking about midnight, he was surprised to find his guards had left him. The prætorian foldiers, in fact, having been corrupted by their commander, had retired to their camp, and proclaimed Galba emperor. Nero immediately sent for his friends to deliberate upon his present exigence; but his friends also forsook him. He went in person from house to house; but all the doors were shut against him, and none were found to answer his inquiries. While he was pursuing this inquiry, his very domestics followed the general defection; and having plundered his apartment, escaped different ways. Being now reduced to desperation, he desired that one of his favourite gladiators might come and dispatch him: but even in this request there was none found to obey. "Alas! (cried he) have I neither friend nor enemy?" And then running desperately forth, he seemed resolved to plunge headlong into the Tiber. But just then his courage beginning to fail him, he made a sudden stop, as if willing to recollect his reason; and asked for some secret place, where he might re-assume his courage, and meet death with becoming fortitude. In this distress, Phaon, one of his freedmen, offered him his country-house, at about four miles distant, where he might for some time remain concealed. Nero accepted his offer; and, half-dressed as he was, with his head covered, and hiding his face with an handkerchief, he mounted on horseback, attended by four of his domestics, of whom the wretched Sporus was one. His journey, though quite short, was crowded with adventures. Round him he heard nothing but confused noises from the camp, and the cries of the soldiers, imprecating a thousand evils upon his head. A passenger, meeting him on the way, cried, "There go men in pursuit of Nero." Another asked him, if there was any news of Nero in the city? His horse taking fright at a dead body that lay near the road, he dropped his handkerchief; and a soldier that was near, addressed him by name. He now therefore quitted his horse, and forsaking the highway, entered a thicket that led towards the back part of Phaon's house, through which he crept, making the best of his way among the reeds and brambles, with which the place was overgrown. When he was arrived at the back part of the house, while he was waiting till there should be a breach made in the wall, he took up some water in the hollow of his hands from a pool to drink; saying, "To this liquor is Nero reduced." When the hole was made large enough to admit him, he crept in upon

all-fours, and took a short repose upon a wretched pallet, that had been prepared for his reception. Being pressed by hunger, he demanded somewhat to eat: they brought him a piece of brown bread, which he refused; but he drank a little water. During this interval, the senate finding the prætorian guards had taken part with Galba, declared him emperor, and condemned Nero to die *more majorum*; that is, "according to the rigour of the ancient laws." These dreadful tidings were quickly brought by one of Phaon's slaves from the city, while Nero yet continued lingering between his hopes and his fears. When he was told of the resolution of the senate against him, he asked the messenger what he meant by being punished "according to the rigour of the ancient laws?" To this he was answered, that the criminal was to be stripped naked, his head was to be fixed in a pillory, and in that posture he was to be scourged to death. Nero was so terrified at this, that he seized two poniards which he had brought with him, and examining their points, returned them to their sheaths, saying, that the fatal moment was not yet arrived. However, he had little time to spare; for the soldiers who had been sent in pursuit of him were just then approaching the house: wherefore hearing the sound of the horse's feet, he set a dagger to his throat, with which, by the assistance of Epaphroditus, his freedman and secretary, he gave himself a mortal wound. He was not quite dead when one of the centurions entering the room, and pretending he came to his relief, attempted to stop the blood with his cloak. But Nero, regarding him with a stern countenance, said, "It is now too late. Is this your fidelity?" Upon which, with his eyes fixed, and frightfully staring, he expired, in the 32d year of his age, and the 14th of his reign.

Galba was 72 years old when he was declared emperor, and was then in Spain with his legions. However, he soon found that his being raised to the throne was but an inlet to new disquietudes. His first embarrassment arose from a disorder in his own army; for upon his approaching the camp, one of the wings of horse repenting of their choice, prepared to revolt, and he found it no easy matter to reconcile them to their duty. He also narrowly escaped assassination from some slaves, who were presented to him by one of Nero's freedmen with that intent. The death of Vindex also served to add not a little to his disquietudes; so that, upon his very entrance into the empire, he had some thoughts of putting an end to his own life. But hearing from Rome that Nero was dead, and the empire transferred to him, he immediately assumed the title and ensigns of command. In his journey towards Rome he was met by Rufus Virginius, who, finding the senate had decreed him the government, came to yield him obedience. This general had more than once refused the empire himself, which was offered him by his soldiers; alleging, that the senate alone had the disposal of it, and from them only he would accept the honour.

Galba having been brought to the empire by means of his army, was at the same time willing to suppress their power to commit any future disturbance. His first approach to Rome was attended with one of those rigorous strokes of justice which ought rather to be denominated *cruelty* than any thing else. A body of mar-

315
His death.316
Uncertainty of Galba in the beginning of his reign.317
Faults in his administration.

Rome.

riners, whom Nero had taken from the oar and enlisted among the legions, went to meet Galba, three miles from the city, and with loud importunities demanded a confirmation of what his predecessor had done in their favour. Galba, who was rigidly attached to the ancient discipline, deferred their request to another time. But they, considering this delay as equivalent to an absolute denial, insisted in a very disrespectful manner; and some of them even had recourse to arms: whereupon Galba ordered a body of horse attending him to ride in among them, and thus killed 7000 of them; but not content with this punishment, he afterwards ordered them to be decimated. Their insolence demanded correction; but such extensive punishments deviated into cruelty. His next step to curb the insolence of the soldiers, was his discharging the German cohort, which had been established by the former emperors as a guard to their persons. Those he sent home to their own country unrewarded, pretending they were disaffected to his person. He seemed to have two other objects also in view; namely, to punish those vices which had come to an enormous height in the last reign, with the strictest severity; and to replenish the exchequer, which had been quite drained by the prodigality of his predecessors. But these attempts only brought on him the imputation of severity and avarice; for the state was too much corrupted to admit of such an immediate transition from vice to virtue. The people had long been maintained in sloth and luxury by the prodigality of the former emperors, and could not think of being obliged to seek for new means of subsistence, and to retrench their superfluities. They began, therefore, to satirize the old man, and turn the simplicity of his manners into ridicule. Among the marks of avarice recorded of him, he is said to have groaned upon having an expensive soup served up to his table; he is said to have presented to his steward, for his fidelity, a plate of beans; a famous player upon the flute, named *Canus*, having greatly delighted him, it is reported, that he drew out his purse, and gave him five-pence, telling him, that it was private and not public money. By such ill-judged frugalities, at such a time, Galba began to lose his popularity; and he, who before his accession was esteemed by all, being become emperor, was considered with ridicule and contempt. But there are some circumstances alleged against him, less equivocal than those trifling ones already mentioned. Shortly after his coming to Rome, the people were presented with a most grateful spectacle, which was that of *Locusta*, *Elius*, *Policletus*, *Petronius*, and *Petinus*, all the bloody ministers of Nero's cruelty, drawn in fetters through the city, and publicly executed. But *Tigellinus*, who had been more active than all the rest, was not there. The crafty villain had taken care for his own safety, by the largeness of his bribes; and though the people cried out for vengeance against him at the theatre and at the circus, yet the emperor granted him his life and pardon. *Helotus* the eunuch, also, who had been the instrument of poisoning *Claudius*, escaped, and owed his safety to the proper application of his wealth. Thus, by the inequality of his conduct, he became despicable to his subjects. At one time shewing himself severe and frugal, at another remiss and prodigal; condemning some illustrious persons without any hearing, and pardoning others though guilty: in short, nothing was done but

by the mediation of his favourites; all offices were venal, and all punishments redeemable by money.

Affairs were in this unsettled posture at Rome, when the provinces were yet in a worse condition. The success of the army in Spain in choosing an emperor induced the legions in the other parts to wish for a similar opportunity. Accordingly, many seditions were kindled, and several factions promoted in different parts of the empire, but particularly in Germany. There were then in that province two Roman armies; the one which had lately attempted to make *Rufus Virginius* emperor, as has been already mentioned, and which was commanded by his lieutenant; the other commanded by *Vitellius*, who long had an ambition to obtain the empire for himself. The former of these armies despising their present general, and considering themselves as suspected by the emperor for having been the last to acknowledge his title, resolved now to be foremost in denying it. Accordingly, when they were summoned to take the oaths of homage and fidelity, they refused to acknowledge any other commands but those of the senate. This refusal they backed by a message of the praetorian bands, importing, that they were resolved not to acquiesce in the election of an emperor created in Spain, and desiring that the senate should proceed to a new choice.

Galba being informed of this commotion, was sensible, that, besides his age, he was less respected for want of an heir. He resolved therefore to put what he had formerly designed in execution, and to adopt some person whose virtues might deserve such advancement, and protect his declining age from danger. His favourites understanding his determination, instantly resolved to give him an heir of their own choosing; so that there arose a great contention among them upon this occasion. *Otho* made warm application for himself; alleging the great services he had done the emperor, as being the first man of note who came to his assistance when he had declared against *Nero*. However, Galba, being fully resolved to consult the public good alone, rejected his suit; and on a day appointed ordered *Piso Lucianus* to attend him. The character given by historians of *Piso* is, that he was every way worthy of the honour designed him. He was noway related to Galba; and had no other interest but merit to recommend him to his favour. Taking this youth therefore by the hand, in the presence of his friends, he adopted him to succeed in the empire, giving him the most wholesome lessons for guiding his future conduct. *Piso's* conduct showed that he was highly deserving this distinction: in all his deportment there appeared such modesty, firmness, and equality of mind, as bespoke him rather capable of discharging, than ambitious of obtaining, his present dignity. But the army and the senate did not seem equally disinterested upon this occasion; they had been so long used to bribery and corruption, that they could now bear no emperor who was not in a capacity of satisfying their avarice. The adoption therefore of *Piso* was but coldly received; for his virtues were no recommendation in a nation of universal depravity.

Otho now finding his hopes of adoption wholly frustrated, and still further stimulated by the immense load of debt which he had contracted by his riotous way of living, resolved upon obtaining the empire by force,

since he could not by peaceable succession. In fact, his circumstances were so very desperate, that he was heard to say, that it was equal to him whether he fell by his enemies in the field or by his creditors in the city. He therefore raised a moderate sum of money, by selling his interest to a person who wanted a place; and with this bribed two subaltern officers in the prætorian bands, supplying the deficiency of largesses by promises and plausible pretences. Having in this manner, in less than eight days, corrupted the fidelity of the soldiers, he stole secretly from the emperor while he was sacrificing; and assembling the soldiers, in a short speech urged the cruelties and avarice of Galba. Finding these his invectives received with universal shouts by the whole army, he entirely threw off the mask, and avowed his intentions of dethroning him. The soldiers being ripe for sedition, immediately seconded his views: taking Otho upon their shoulders, they instantly proclaimed him emperor; and, to strike the citizens with terror, carried him with their swords drawn into the camp.

Galba, in the mean time, being informed of the revolt of the army, seemed utterly confounded, and in want of sufficient resolution to face an event which he should have long foreseen. In this manner the poor old man continued wavering and doubtful; till at last, being deluded by a false report of Otho's being slain, he rode into the forum in complete armour, attended by many of his followers. Just at the same instant a body of horse sent from the camp to destroy him entered on the opposite side, and each party prepared for the encounter. For some time hostilities were suspended on each side; Galba, confused and irresolute, and his antagonists struck with horror at the baseness of their enterprise. At length, however, finding the emperor in some measure deserted by his adherents, they rushed in upon him, trampling under foot the crowds of people that then filled the forum. Galba seeing them approach, seemed to recollect all his former fortitude; and bending his head forward, bid the assassins strike it off if it were for the good of the people. This was quickly performed; and his head being set upon the point of a lance, was presented to Otho, who ordered it to be contemptuously carried round the camp; his body remaining exposed in the streets till it was buried by one of his slaves. He died in the 73d year of his age, after a short reign of seven months.

No sooner was Galba thus murdered, than the senate and people ran in crowds to the camp, contending who should be foremost in extolling the virtues of the new emperor, and depressing the character of him they had so unjustly destroyed. Each laboured to excel the rest in his instances of homage; and the less his affections were for him, the more did he indulge all the vehemence of exaggerated praise. Otho finding himself surrounded by congratulating multitudes, immediately repaired to the senate, where he received the titles usually given to the emperors; and from thence returned to the palace, seemingly resolved to reform his life, and assume manners becoming the greatness of his station.

He began his reign by a signal instance of clemency, in pardoning Marius Celsus, who had been highly favoured by Galba; and not contented with barely forgiving, he advanced him to the highest honours; as-

serting, that "fidelity deserved every reward." This act of clemency was followed by another of justice, equally agreeable to the people. Tigellinus, Nero's favourite, he who had been the promoter of all his cruelties, was now put to death; and all such as had been unjustly banished, or stripped, at his instigation, during Nero's reign, were restored to their country and fortunes.

In the mean time, the legions in Lower Germany having been purchased by the large gifts and specious promises of Vitellius their general, were at length induced to proclaim him emperor; and regardless of the senate, declared that they had an equal right to appoint to that high station with the cohorts at Rome. The news of this conduct in the army soon spread consternation throughout Rome; but Otho was particularly struck with the account, as being apprehensive that nothing but the blood of his countrymen could decide a contest of which his own ambition only was the cause. He now therefore sought to come to an agreement with Vitellius; but this not succeeding, both sides began their preparations for war. News being received that Vitellius was upon his march to Italy, Otho departed from Rome with a vast army to oppose him. But though he was very powerful with regard to numbers, his men, being little used to war, could not be relied on. He seemed by his behaviour sensible of the disproportion of his forces; and he is said to have been tortured with frightful dreams and the most uneasy apprehensions. It is also reported by some, that one night fetching many profound sighs in his sleep, his servants ran hastily to his bed-side, and found him stretched on the ground. He alleged he had seen the ghost of Galba, which had, in a threatening manner, beat and pushed him from the bed; and he afterwards used many expiations to appease it. However this be, he proceeded with a great show of courage till he arrived at the city of Brixellum, on the river Po, where he remained, sending his forces before him under the conduct of his generals Suetonius and Celsus, who made what haste they could to give the enemy battle. The army of Vitellius, which consisted of 70,000 men, was commanded by his generals Valens and Cecina, he himself remaining in Gaul in order to bring up the rest of his forces. Thus both sides hastened to meet each other with so much animosity and precipitation, that three considerable battles were fought in the space of three days. One near Placentia, another near Cremona, and a third at a place called *Castor*; in all which Otho had the advantage. But these successes were but of short-lived continuance; for Valens and Cecina, who had hitherto acted separately, joining their forces, and reinforcing their armies with fresh supplies, resolved to come to a general engagement. Otho, who by this time had joined his army at a little village called *Bedriacum*, finding the enemy notwithstanding their late losses, inclined to come to a battle, resolved to call a council of war to determine upon the proper measures to be taken. His generals were of opinion to protract the war: but others, whose inexperience had given them confidence, declared, that nothing but a battle could relieve the miseries of the state; protesting, that Fortune, and all the gods, with the divinity of the emperor himself, favoured the design, and would undoubtedly prosper the enterprise.

Rome.

In this advice Otho acquiesced: he had been for some time so uneasy under the war, that he seemed willing to exchange suspense for danger. However, he was so surrounded with flatterers, that he was prohibited from being personally present in the engagement, but prevailed upon to reserve himself for the fortune of the empire, and wait the event at Brixellum. The affairs of both armies being thus adjusted, they came to an engagement at Bedriacum; where, in the beginning, those on the side of Otho seemed to have the advantage. At length, the superior discipline of the legions of Vitellius turned the scale of victory. Otho's army fled in great confusion towards Bedriacum, being pursued with a miserable slaughter all the way.

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Despairs,
and kills
himself.

In the mean time, Otho waited for the news of the battle with great impatience, and seemed to tax his messengers with delay. The first account of his defeat was brought him by a common soldier, who had escaped from the field of battle. However, Otho, who was still surrounded by flatterers, was desirous to give no credit to a base fugitive, who was guilty of falsehood only to cover his own cowardice. The soldier, however, still persisted in the veracity of his report; and, finding none inclined to believe him, immediately fell upon his sword, and expired at the emperor's feet. Otho was so much struck with the death of this man, that he cried out, that he would cause the ruin of no more such valiant and worthy soldiers, but would end the contest the shortest way; and therefore having exhorted his followers to submit to Vitellius, he put an end to his own life.

It was no sooner known that Otho had killed himself, than all the soldiers repaired to Virginius, the commander of the German legions, earnestly intreating him to take upon him the reins of government; or at least, intreating his mediation with the generals of Vitellius in their favour. Upon his declining their request, Rubrius Gallus, a person of considerable note, undertook their embassy to the generals of the conquering army; and soon after obtained a pardon for all the adherents of Otho.

325
Vitellius
declared
emperor.

Vitellius was immediately after declared emperor by the senate; and received the marks of distinction which were now accustomed to follow the appointment of the strongest side. At the same time, Italy was severely distressed by the soldiers, who committed such outrages as exceeded all the oppressions of the most calamitous war. Vitellius, who was yet in Gaul, resolved, before he set out for Rome, to punish the prætorian cohorts, who had been the instruments of all the late disturbances in the state. He therefore caused them to be disarmed, and deprived of the name and honour of soldiers. He also ordered 150 of those who were most guilty to be put to death.

As he approached towards Rome, he passed through the towns with all imaginable splendor; his passage by water was in painted galleys, adorned with garlands of flowers, and profusely furnished with the greatest delicacies. In his journey there was neither order nor discipline among his soldiers; they plundered wherever they came with impunity; and he seemed no way displeased with the licentiousness of their behaviour.

Upon his arrival at Rome, he entered the city, not as a place he came to govern with justice, but as a town that became his own by the laws of conquest. He

marched through the streets mounted on horseback, all in armour; the senate and people going before him, as if the captives of his late victory. He the next day made the senate a speech, in which he magnified his own actions, and promised them extraordinary advantages from his administration. He then harangued the people, who, being now long accustomed to flatter all in authority, highly applauded and blessed their new emperor.

In the mean time, his soldiers being permitted to satisfy themselves in the debaucheries of the city, grew totally unfit for war. The principal affairs of the state were managed by the lowest wretches. Vitellius, more abandoned than they, gave himself up to all kinds of luxury and profuseness: but gluttony was his favourite vice, so that he brought himself to a habit of vomiting, in order to renew his meals at pleasure. His entertainments, though seldom at his own cost, were prodigiously expensive; he frequently invited himself to the tables of his subjects, breakfasting with one, dining with another, and supping with a third, all in the same day. The most memorable of these entertainments was that made for him by his brother on his arrival at Rome. In this were served up 2000 several dishes of fish, and 7000 of fowl, of the most valuable kinds. But in one particular dish he seemed to have outdone all the former profusion of the most luxurious Romans. This dish, which was of such magnitude as to be called the *shield of Minerva*, was filled with an olio made from the sounds of the fish called *scarri*, the brains of pheasants and woodcocks, the tongues of the most costly birds, and the spawn of lampreys brought from the Carpathian sea. In order to cook this dish properly, a furnace was built in the fields, as it was too large for any kitchen to contain it.

In this manner did Vitellius proceed; so that Josephus tells us, if he had reigned long, the whole empire would not have been sufficient to have maintained his gluttony. All the attendants of his court sought to raise themselves, not by their virtues and abilities, but the sumptuousness of their entertainments. This prodigality produced its attendant, want; and that, in turn, gave rise to cruelty.

Those who had formerly been his associates were now destroyed without mercy. Going to visit one of them in a violent fever, he mingled poison with his water, and delivered it to him with his own hands. He never pardoned those money-lenders who came to demand payment of his former debts. One of the number coming to salute him, he immediately ordered him to be carried off to execution; but shortly after, commanding him to be brought back, when all his attendants thought it was to pardon the unhappy creditor, Vitellius gave them soon to understand that it was merely to have the pleasure of feeding his eyes with his torments. Having condemned another to death, he executed his two sons with him, only for their presuming to intercede for their father. A Roman knight being dragged away to execution, and crying out that he had made the emperor his heir, Vitellius demanded to see the will, where finding himself joint heir with another, he ordered both to be executed, that he might enjoy the legacy without a partner.

By the continuance of such vices and cruelties as these he became odious to all mankind, and the astrologers

Rome.

326

His shame-
ful glut-
tony, and
other vices.

Rome. logers began to prognosticate his ruin. A writing was set up in the forum to this effect: "We, in the name of the ancient Chaldeans, give Vitellius warning to depart this life by the kalends of October." Vitellius, on his part, received this information with terror, and ordered all the astrologers to be banished from Rome. An old woman having foretold, that if he survived his mother, he should reign many years in happiness and security, this gave him a desire of putting her to death; which he did, by refusing her sustenance, under the pretence of its being prejudicial to her health. But he soon saw the futility of relying upon such vain prognostications; for his soldiers, by their cruelty and rapine, having become insupportable to the inhabitants of Rome, the legions of the East, who had at first acquiesced in his dominion, began to revolt, and shortly after unanimously resolved to make Vespasian emperor.

327
Vespasian
proclaimed
emperor.

Vespasian, who was appointed commander against the rebellious Jews, had reduced most of their country, except Jerusalem, to subjection. The death of Nero, however, had at first interrupted the progress of his arms, and the succession of Galba gave a temporary check to his conquests, as he was obliged to send his son Titus to Rome, to receive that emperor's commands. Titus, however, was so long detained by contrary winds, that he received news of Galba's death before he set sail. He then resolved to continue neuter during the civil wars between Otho and Vitellius; and when the latter prevailed, he gave him his homage with reluctance. But being desirous of acquiring reputation, though he disliked the government, he determined to lay siege to Jerusalem, and actually made preparations for that great undertaking, when he was given to understand that Vitellius was detested by all ranks in the empire. These murmurings increased every day, while Vespasian secretly endeavoured to advance the discontents of the army. By these means they began at length to fix their eyes upon him as the person the most capable and willing to terminate the miseries of his country, and put a period to the injuries it suffered. Not only the legions under his command, but those in Mesia and Pannonia, came to the same resolution, so that they declared themselves for Vespasian. He was also without his own consent proclaimed emperor at Alexandria, the army there confirming it with extraordinary applause, and paying their accustomed homage. Still, however, Vespasian seemed to decline the honour done him; till at length his soldiers compelled him, with their threats of immediate death, to accept a title which, in all probability, he wished to enjoy. He now, therefore, called a council of war: where it was resolved, that his son Titus should carry on the war against the Jews; and that Mutianus, one of his generals, should, with the greatest part of his legions, enter Italy; while Vespasian himself should levy forces in all parts of the east, in order to reinforce them in case of necessity.

During these preparations, Vitellius, though buried in sloth and luxury, was resolved to make an effort to defend the empire; wherefore his chief commanders, Valens and Cecina, were ordered to make all possible preparations to resist the invaders. The first army that entered Italy with an hostile intention was under the command of Antonius Primus, who was met by Ce-

cina near Cremona. A battle was expected to ensue; but a negotiation taking place, Cecina was prevailed upon to change sides, and declare for Vespasian. His army, however, quickly repented of what they had done; and imprisoning their general, attacked Antonius, though without a leader. The engagement continued during the whole night: in the morning, after a short repast, both armies engaged a second time; when the soldiers of Antonius saluting the rising sun, according to custom, the Vitellians supposing that they had received new reinforcements, betook themselves to flight, with the loss of 30,000 men. Shortly after, freeing their general Cecina from prison, they prevailed upon him to intercede with the conquerors for pardon; which they obtained, though not without the most horrid barbarities committed upon Cremona, the city to which they had retired for shelter.

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Vitellius
defeated.

When Vitellius was informed of the defeat of his army, his former insolence was converted into an extreme of timidity and irresolution. At length he commanded Julius Priscus and Alphenus Varus, with some forces that were in readiness, to guard the passes of the Apennines, to prevent the enemy's march to Rome; reserving the principal body of his army to secure the city, under the command of his brother Lucius. But being persuaded to repair to his army in person, his presence only served to increase the contempt of his soldiers. He there appeared irresolute, and still luxurious, without counsel or conduct, ignorant of war, and demanding from others those instructions which it was his duty to give. After a short continuance in the camp, and understanding the revolt of his fleet, he returned once more to Rome: but every day only served to render his affairs still more desperate; till at last he made offers to Vespasian of resigning the empire, provided his life were granted, and a sufficient revenue for his support. In order to enforce his request, he issued from his palace in deep mourning, with all his domestics weeping round him. He then went to offer the sword of justice to Cecilius, the consul; which he refusing, the abject emperor prepared to lay down the ensigns of the empire in the temple of Concord. But being interrupted by some, who cried out, That he himself was Concord, he resolved, upon so weak an encouragement, still to maintain his power, and immediately prepared for his defence.

During this fluctuation of counsels, one Sabinus, who had advised Vitellius to resign, perceiving his desperate situation, resolved, by a bold step, to oblige Vespasian, and accordingly seized upon the Capitol. But he was premature in his attempt; for the soldiers of Vitellius attacked him with great fury, and, prevailing by their numbers, soon laid that beautiful building in ashes. During this dreadful conflagration, Vitellius was feasting in the palace of Tiberius, and beholding all the horrors of the assault with great satisfaction. Sabinus was taken prisoner, and shortly after executed by the emperor's command. Young Domitian, his nephew, who was afterwards emperor, escaped by flight, in the habit of a priest; and all the rest who survived the fire were put to the sword.

But this success served little to improve the affairs of Vitellius. He vainly sent messenger after messenger to bring Vespasian's general, Antonius, to a composition.

This

329
The Capitol
burnt.

Rome.
330
Dreadful
situation
of Rome.

This commander gave no answer to his requests, but still continued his march towards Rome. Being arrived before the walls of the city, the forces of Vitellius were resolved upon defending it to the utmost extremity. It was attacked on three sides with the utmost fury; while the army within, rallying upon the besiegers, defended it with equal obstinacy. The battle lasted a whole day, till at last the besieged were driven into the city, and a dreadful slaughter made of them in all the streets, which they vainly attempted to defend. In the mean time, the citizens stood by, looking on as both sides fought; and, as if they had been in a theatre, clapped their hands; at one time encouraging one party, and again the other. As either turned their backs, the citizens would then fall upon them in their places of refuge, and so kill and plunder them without mercy. But what was still more remarkable, during these dreadful slaughters both within and without the city, the people would not be prevented from celebrating one of their riotous feasts, called the *Saturnalia*; so that at one time might have been seen a strange mixture of mirth and misery, of cruelty and lewdness; in one place, burials and slaughters; in another, drunkenness and feasting; in a word, all the horrors of a civil war, and all the licentiousness of the most abandoned security!

During this complicated scene of misery, Vitellius retired privately to his wife's house, upon mount Aventine, designing that night to fly to the army commanded by his brother at Tarracina. But, quite incapable, through fear, of forming any resolution, he changed his mind, and returned again to his palace, now void and desolate; all his slaves forsaking him in his distress, and purposely avoiding his presence. There, after wandering for some time quite disconsolate, and fearing the face of every creature he met, he hid himself in an obscure corner, from whence he was soon taken by a party of the conquering soldiers. Still, however, willing to add a few hours more to his miserable life, he begged to be kept in prison till the arrival of Vespasian at Rome, pretending that he had secrets of importance to discover. But his intreaties were vain: the soldiers binding his hands behind him, and throwing an halter round his neck, led him along, half naked, into the public forum, upbraiding him, as they proceeded, with all those bitter reproaches their malice could suggest, or his own cruelties deserve. They also tied his hair backwards, as was usual with the most infamous malefactors, and held the point of a sword under his chin, to prevent his hiding his face from the public. Some cast dirt and filth upon him as he passed, others struck him with their hands; some ridiculed the defects of his person, his red fiery face, and the enormous greatness of his belly. At length, being come to the place of punishment, they killed him with many blows; and then dragging the dead body through the streets with an hook, they threw it, with all possible ignominy, into the river Tiber. Such was the miserable end of this emperor, in the 57th year of his age, after a short reign of eight months and five days.

331
Dreadful
cruelty
practised
by the sol-
diers.

Vitellius being dead, the conquering army pursued their enemies throughout the city, while neither houses nor temples afforded refuge to the fugitives. The streets and public places were all strewed with dead, each man lying slain where it was his misfortune to be

overtaken by his unmerciful pursuers. But not only the enemy suffered in this manner, but many of the citizens, who were obnoxious to the soldiers, were dragged from their houses, and killed without any form of trial. The heat of their resentment being somewhat abated, they next began to seek for plunder; and under pretence of searching for the enemy, left no place without marks of their rage or rapacity. Besides the soldiers, the lower rabble joined in these detestable outrages; some slaves came and discovered the riches of their masters; some were detected by their nearest friends; the whole city was filled with outcry and lamentation; inasmuch, that the former ravages of Otho and Vitellius were now considered as slight evils in comparison.

At length, however, upon the arrival of Mutianus, general to Vespasian, these slaughters ceased, and the state began to wear the appearance of former tranquillity. Vespasian was declared emperor by the unanimous consent both of the senate and the army; and dignified with all those titles, which now followed rather the power than the merit of those who were appointed to govern. Messengers were dispatched to him into Egypt, desiring his return, and testifying the utmost desire for his government. However, the winter being dangerous for sailing, he deferred his voyage to a more convenient season. Perhaps, also, the dissensions in other parts of the empire retarded his return to Rome; for one Claudius Civilis, in Lower Germany, excited his countrymen to revolt, and destroyed many of the Roman garrisons, which were placed in different parts of that province. But, to give his rebellion an air of justice, he caused his army to swear allegiance to Vespasian, until he found himself in a condition to throw off the mask. When he thought himself sufficiently powerful, he disclaimed all submission to the Roman government; and having overcome one or two of the lieutenants of the empire, and being joined by such of the Romans as refused obedience to the new emperor, he boldly advanced to give Cerealis, Vespasian's general, battle. In the beginning of this engagement, he seemed successful, breaking the Roman legions, and putting their cavalry to flight. But at length Cerealis by his conduct turned the fate of the day, and not only routed the enemy, but took and destroyed their camp. This engagement, however, was not decisive; several others ensued with doubtful success. An accommodation at length took place. Civilis obtained peace for his countrymen, and pardon for himself; for the Roman empire was, at this time, so torn by its own divisions, that the barbarous nations around made incursions with impunity, and were sure of obtaining peace whenever they thought proper to demand it.

Rome.

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Vespasian
proclaimed
emperor of
Rome.

333
Revolt of
Claudius
Civilis.

During the time of these commotions in Germany, the Sarmatians, a barbarous nation in the north-east of the empire, suddenly passed the river Ister, and marched into the Roman dominions with such celerity and fury, as to destroy several garrisons, and an army under the command of Fonteius Agrippa. However, they were driven back by Rubrius Gallus, Vespasian's lieutenant, into their native forests; where several attempts were made to confine them by garrisons and forts, placed along the confines of their country. But these hardy nations, having once found the way into the empire, never

334
Irruption
of the Sarmatians.

Rome.

never after desisted from invading it upon every opportunity, till at length they over-ran and destroyed it entirely.

Vespasian continued some months at Alexandria in Egypt, where it is said he cured a blind and a lame man by touching them. Before he set out for Rome, he gave his son Titus the command of the army that was to lay siege to Jerusalem; while he himself went forward, and was met many miles from Rome by all the senate, and near half the inhabitants, who gave the sincerest testimonies of their joy, in having an emperor of such great and experienced virtues. Nor did he in the least disappoint their expectations; being equally assiduous in rewarding merit, and pardoning his adversaries; in reforming the manners of the citizens, and setting them the best example in his own.

In the mean time, Titus carried on the war against the Jews with vigour, which ended in the terrible destruction of the city, mentioned under the article Jews. After which his soldiers would have crowned Titus as conqueror; but he refused the honour, alleging that he was only an instrument in the hand of Heaven, that manifestly declared its wrath against the Jews. At Rome, however, all mouths were filled with the praises of the conqueror, who had not only showed himself an excellent general, but a courageous combatant: his return, therefore, in triumph, which he did with his father, was marked with all the magnificence and joy that was in the power of men to express. All things that were esteemed valuable or beautiful among men were brought to adorn this great occasion. Among the rich spoils were exposed vast quantities of gold taken out of the temple; but the book of their law was not the least remarkable amongst the magnificent profusion. A triumphal arch was erected upon this occasion, on which were described all the victories of Titus over the Jews, which remains almost entire to this very day. Vespasian likewise built a temple to Peace, wherein were deposited most of the Jewish spoils; and having now calmed all the commotions in every part of the empire, he shut up the temple of Janus, which had been open about five or six years.

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Various abuses reformed by Vespasian.

Vespasian having thus given security and peace to the empire, resolved to correct numberless abuses which had grown up under the tyranny of his predecessors. To effect this with greater ease, he joined Titus with him in the consulship and tribunitial power, and in some measure admitted him a partner in all the highest offices of the state. He began with restraining the licentiousness of the army, and forcing them back to their pristine discipline. He abridged the processes that had been carried to an unreasonable length in the courts of justice. He took care to rebuild such parts of the city as had suffered in the late commotions; particularly the Capitol, which had been lately burnt; and which he now restored to more than former magnificence. He likewise built a famous amphitheatre, the ruins of which are to this day an evidence of its ancient grandeur. The other ruinous cities of the empire also shared his paternal care; he improved such as were declining, adorned others, and built many anew. In such acts as these he passed a long reign of clemency and moderation; so that it is said, no man suffered by an unjust or a severe decree during his administration.

Julius Sabinus seems to be the only person who was

treated with greater rigour than was usual with this emperor. Sabinus was commander of a small army in Gaul, and had declared himself emperor upon the death of Vitellius. However, his army was shortly after over-come by Vespasian's general, and he himself compelled to seek safety by flight. He for some time wandered through the Roman provinces, without being discovered: but finding the pursuit every day become closer, he was obliged to hide himself in a cave; in which he remained concealed for no less than nine years, attended all the time by his faithful wife Empona, who provided provisions for him by day, and repaired to him by night. However, she was at last discovered in the performance of this pious office, and Sabinus was taken prisoner and carried to Rome. Great intercession was made to the emperor in his behalf: Empona herself appearing with her two children, and imploring her husband's pardon. However, neither her tears nor intreaties could prevail; Sabinus had been too dangerous a rival for mercy; so that, though she and her children were spared, her husband suffered by the executioner.

But this seems to be the only instance in which he repented past offences. He caused the daughter of Vitellius, his avowed enemy, to be married into a noble family, and he himself provided her a suitable fortune. One of Nero's servants coming to beg for pardon for having once rudely thrust him out of the palace, and insulted him when in office, Vespasian only took his revenge by serving him just in the same manner. When any plots or conspiracies were formed against him, he disdained to punish the guilty, saying, That they deserved rather his contempt for their ignorance, than his resentment; as they seemed to envy him a dignity of which he daily experienced the uneasiness. His liberality towards the encouragement of arts and learning, was not less than his clemency. He settled a constant salary of 100,000 sesterces upon the teachers of rhetoric. He was particularly favourable to Josephus, the Jewish historian. Quintilian the orator, and Pliny the naturalist, flourished in his reign, and were highly esteemed by him. He was no less an encourager of all other excellencies in art; and invited the greatest masters and artificers from all parts of the world, making them considerable presents, as he found occasion.

Yet all his numerous acts of generosity and magnificence could not preserve his character from the imputation of rapacity and avarice. He revived many obsolete methods of taxation; and even bought and sold commodities himself, in order to increase his fortune. He is charged with advancing the most avaricious governors to the provinces, in order to share their plunder on their return to Rome. He descended to some very unusual and dishonourable imposts, even to the laying a tax upon urine. When his son Titus remonstrated against the meanness of such a tax, Vespasian taking a piece of money, demanded if the smell offended him; and then added, that this very money was produced by urine. But in excuse for this, we must observe, that the exchequer, when Vespasian came to the throne, was so much exhausted, that he informed the senate that it would require a supply of three hundred millions (of our money) to re-establish the commonwealth. This necessity must naturally produce more numerous and heavy taxations than the empire had hitherto experienced; but while the provinces were thus obliged to contribute

Rome.

337
Adventures and death of Julius Sabinus.

338
Clemency and good qualities of the emperor.

Rome.

contribute to the support of his power, he took every precaution to provide for their safety; so that we find but two insurrections in this reign.—In the fourth year of his reign, Antiochus king of Comagena, holding a private correspondence with the Parthians, the declared enemies of Rome, was taken prisoner in Cilicia, by Pyrrhus the governor, and sent bound to Rome. But Vespasian generously prevented all ill treatment, by giving him a residence at Lacedæmon, and allowing him a revenue suitable to his dignity. About the same time also, the Alani, a barbarous people inhabiting along the river Tanais, abandoned their barren wilds, and invaded the kingdom of Media. From thence passing into Armenia, after great ravages, they overthrew Tiridates, the king of that country, with prodigious slaughter. Titus was at length sent to chastise their insolence: but the barbarians retired at the approach of the Roman army, loaded with plunder; being compelled to wait a more favourable opportunity of renewing their irruptions. These incursions, however, were but a transient storm, the effects of which were soon repaired by the emperor's moderation and assiduity. We are told, that he now formed and established a thousand nations, which had scarcely before amounted to 200. No provinces in the empire lay out of his view and protection. He had, during his whole reign, a particular regard to Britain; his generals, Petilius Cerealis, and Julius Frontinus, brought the greatest part of the island into subjection; and Agricola, who succeeded soon after, completed what they had begun. See ENGLAND.

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Death of
Vespasian.

In this manner, having reigned 10 years, loved by his subjects, and deserving their affection, he was surprised by an indisposition at Campania, which he at once declared would be fatal, crying out, in the spirit of Paganism, "Methinks I am going to be a god." Removing from thence to the city, and afterwards to a country-seat near Reate, he was there taken with a flux, which brought him to the last extremity. However, perceiving his end approach, and just going to expire, he cried out, that an emperor ought to die standing; wherefore, raising himself upon his feet, he expired in the hands of those that sustained him.

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Titus suc-
ceeds
empire.

Titus being joyfully received as emperor, notwithstanding a slight opposition from his brother Domitian, who maintained that he himself was appointed, and that Titus had falsified the will, began his reign with every virtue that became an emperor and a man. During the life of his father there had been many imputations against him; but upon his exaltation to the throne he seemed entirely to take leave of his former vices, and became an example of the greatest moderation and humanity. He had long loved Berenice, sister to Agrippa king of Judea, a woman of the greatest beauty and allurements. But knowing that the connection with her was entirely disagreeable to the people of Rome, he sent her away, notwithstanding their mutual passion and the many arts she used to induce him to change his resolutions. He next discarded all those who had been the former ministers of his pleasures, and forbore to countenance the companions of his looser recreations, though he had formerly taken great pains in the selection. This moderation, added to his justice and generosity, procured him the love of all good men, and the appellation of the *delight of mankind*, which all his ac-

Rome.

tions seemed calculated to ensure. As he came to the throne with all the advantages of his father's popularity, he was resolved to use every method to increase it. He therefore took particular care to punish all informers, false witnesses, and promoters of dissension, condemning them to be scourged in the most public streets, next to be dragged through the theatre, and then to be banished to the uninhabited parts of the empire, and sold as slaves. His courtesy and readiness to do good have been celebrated even by Christian writers; his principal rule being, never to send any petitioner dissatisfied away. One night, recollecting that he had done nothing beneficial to mankind the day preceding, he cried out among his friends, "I have lost a day." A sentence too remarkable not to be universally known.

In this reign, an eruption of mount Vesuvius did A dreadful eruption of Vesuvius. 341
considerable damage, overwhelming many towns, and sending its ashes into countries more than 100 miles distant. Upon this memorable occasion, Pliny the naturalist lost his life; for, being impelled by too eager a curiosity to observe the eruption, he was suffocated in the flames. There happened also about this time a fire at Rome, which continued three days and nights successively, which was followed by a plague, in which 10,000 men were buried in a day. The emperor, however, did all that lay in his power to repair the damage sustained by the public; and, with respect to the city, declared that he would take the whole loss of it upon himself. These disasters were in some measure counter- 342
balanced by the successes in Britain, under Agricola, civilizes the Britons.
This excellent general having been sent into that coun-
try towards the latter end of Vespasian's reign, showed himself equally expert in quelling the refractory, and civilizing those who had formerly submitted to the Roman power. The Ordovices, or inhabitants of North Wales, were the first that were subdued. He then made a descent upon Mona, or the island of Anglesea; which surrendered at discretion. Having thus rendered himself master of the whole country, he took every method to restore discipline to his own army, and to introduce some share of politeness among those whom he had conquered. He exhorted them, both by advice and example, to build temples, theatres, and stately houses. He caused the sons of their nobility to be instructed in the liberal arts; he had them taught the Latin language, and induced them to imitate the Roman modes of dressing and living. Thus, by degrees, this barbarous people began to assume the luxurious manners of their conquerors, and in time even outdid them in all the refinements of sensual pleasure. For the success in Britain, Titus was saluted emperor the 15th time; but he did not long survive his honours, being seized with a violent fever at a little distance from Rome. Perceiving his death to approach, he declared, that during the whole course of his life he knew but of one action which he repented of; but that action he did not think proper to express. Shortly after, he died (not without suspicion of treachery from his brother Domitian, who had long wished to govern) in the 41st year of his age, having reigned two years two months and twenty days.

The love which all ranks of people bore to Titus, 344
facilitated the election of his brother Domitian, notwithstanding the ill opinion many had already conceived of him. His ambition was already but too well known,
4

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Titus dies.

Rome. known, and his pride soon appeared upon his coming to the throne; having been heard to declare, that he had given the empire to his father and brother, and now received it again as his due.

The beginning of his reign was universally acceptable to the people, as he appeared equally remarkable for his clemency, liberality, and justice. He carried his abhorrence of cruelty so far, as at one time to forbid the sacrificing of oxen. His liberality was such, that he would not accept of the legacies that were left him by such as had children of their own. His justice was such, that he would sit whole days and reverse the partial sentences of the ordinary judges. He appeared very careful and liberal in repairing the libraries which had been burnt, and recovering copies of such books as had been lost, sending on purpose to Alexandria to transcribe them. But he soon began to show the natural deformity of his mind. Instead of cultivating literature, as his father and brother had done, he neglected all kinds of study, addicting himself wholly to the meaner pursuits, particularly archery and gaming. No emperor before him entertained the people with such various and expensive shows. During these diversions he distributed great rewards; sitting as president himself, adorned with a purple robe and crown, with the priests of Jupiter and the college of Flavian priests about him. The meanness of his occupations in solitude were a just contrast to his exhibitions in public ostentation. He usually spent his hours of retirement in catching flies, and sticking them through with a bodkin; so that one of his servants being asked if the emperor was alone, he answered, that he had not so much as a fly to bear him company. His vices seemed every day to increase with the duration of his reign; and as he thus became more odious to his people, all their murmurs only served to add strength to his suspicions, and malice to his cruelty. His ungrateful treatment of Agricola seemed the first symptom of his natural malevolence. Domitian was always particularly fond of obtaining a military reputation, and therefore jealous of it in others. He had marched some time before into Gaul, upon a pretended expedition against the Catti, a people of Germany; and, without ever seeing the enemy, resolved to have the honour of a triumph upon his return to Rome. For that purpose he purchased a number of slaves, whom he dressed in German habits; and at the head of this miserable procession entered the city, amidst the apparent acclamations and concealed contempt of all his subjects. The successes, therefore, of Agricola in Britain affected him with an extreme degree of envy. This admirable general, who is scarce mentioned by any writer except Tacitus, pursued the advantages which he had already obtained. He routed the Caledonians; overcame Galgacus, the British chief, at the head of 30,000 men; and afterwards sending out a fleet to scour the coast, first discovered Great Britain to be an island*. He likewise discovered and subdued the Orkneys, and thus reduced the whole into a civilized province of the Roman empire. When the account of these successes was brought to Domitian, he received it with a seeming pleasure, but real uneasiness. He thought Agricola's rising reputation a reproach upon his own inactivity; and, instead of attempting to emulate, he resolved to suppress the merit of his services. He ordered him, therefore, the external marks of his approbation, and

took care that triumphant ornaments, statues, and other honours, should be decreed him; but at the same time he removed him from his command, under a pretence of appointing him to the government of Syria. By these means, Agricola surrendered up his government to Salustius Lucullus, but soon found that Syria was otherwise disposed of. Upon his return to Rome, which was privately and by night, he was coolly received by the emperor; and dying some time after in retirement, it was supposed by some that his end was hastened by Domitian's direction.

Domitian soon after found the want of so experienced a commander in the many irruptions of the barbarous nations that surrounded the empire. The Sarmatians in Europe, joined with those in Asia, made a formidable invasion; at once destroying a whole legion, and a general of the Romans. The Dacians, under the conduct of Decebalus their king, made an irruption, and overthrew the Romans in several engagements. Losses were followed by losses, so that every season became memorable for some remarkable overthrow. At last, however, the state making a vigorous exertion of its internal power, the barbarians were repelled, partly by force and partly by the assistance of money, which only served to enable them to make future invasions to greater advantage. But in whatever manner the enemy might have been repelled, Domitian was resolved not to lose the honour of a triumph. He returned in great splendor to Rome; and not contented with thus triumphing twice without a victory, he resolved to take the surname of *Germanicus*, for his conquest over a people with whom he never contended.

In proportion as the ridicule increased against him, his pride seemed every day to demand greater homage. He would permit his statues to be made only of gold and silver; assumed to himself divine honours; and ordered that all men should treat him with the same appellations which they gave to the divinity. His cruelty was not behind his arrogance; he caused numbers of the most illustrious senators and others to be put to death upon the most trifling pretences. Salustius Lucullus, his lieutenant in Britain, was destroyed only for having given his own name to a new sort of lances of his own invention. Junius Rusticus died for publishing a book, in which he commended Thrasea and Priscus, two philosophers who opposed Vespasian's coming to the throne.

Such cruelties as these, that seem almost without a motive, may naturally be supposed to have produced rebellion. Lucius Antonius, governor in Upper Germany, knowing how much the emperor was detested at home, assumed the ensigns of imperial dignity. As he was at the head of a formidable army, his success remained long doubtful; but a sudden overflowing of the Rhine dividing his army, he was set upon at that juncture by Normandus, the emperor's general, and totally routed. The news of this victory, we are told, was brought to Rome by supernatural means, on the same day that the battle was fought. Domitian's severity was greatly increased by this success, of short duration. In order to discover those who were accomplices with the adverse party, he invented new tortures, sometimes cutting off the hands, at other times thrusting fire into the privities, of the people whom he suspected of being his enemies. During these cruelties, he aggravated their

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Many barbarous nations invaded the empire.

345
his enormities.

See Scotland.

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Monstrous cruelty of the emperor.

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their guilt by hypocrisy, never pronouncing sentence without a preamble full of gentleness and mercy. He was particularly terrible to the senate and nobility, the whole body of whom he frequently threatened entirely to extirpate. At one time, he surrounded the senate-house with his troops, to the great consternation of the senators. At another, he resolved to amuse himself with their terrors in a different manner. Having invited them to a public entertainment, he received them all very formally at the entrance of his palace, and conducted them into a spacious hall, hung round with black, and illuminated by a few melancholy lamps, that diffused light only sufficient to show the horrors of the place. All around were to be seen nothing but coffins, with the names of each of the senators written upon them, together with other objects of terror, and instruments of execution. While the company beheld all the preparations with silent agony, several men, having their bodies blackened, each with a drawn sword in one hand and a flaming torch in the other, entered the hall, and danced round them. After some time, when the guests expected nothing less than instant death, well knowing Domitian's capricious cruelty, the doors were set open, and one of the servants came to inform them, that the emperor gave all the company leave to withdraw.

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He persecutes the
Jews and
Christians.

These cruelties were rendered still more odious by his lust and avarice. Frequently after presiding at an execution, he would retire with the lewdest prostitutes, and use the same baths which they did. His avarice, which was the consequence of his profusion, knew no bounds. He seized upon the estates of all against whom he could find the smallest pretensions; the most trifling action or word against the majesty of the prince was sufficient to ruin the possessor. He particularly exacted large sums from the rich Jews; who even then began to practise the art of peculation, for which they are at present so remarkable. He was excited against them, not only by avarice, but by jealousy. A prophecy had been long current in the east, that a person from the line of David should rule the world. Whereupon, this suspicious tyrant, willing to evade the prediction, commanded all the Jews of the lineage of David to be diligently sought out, and put to death. Two Christians, grandsons of St Jude the apostle, of that line, were brought before him; but finding them poor, and no way ambitious of temporal power, he dismissed them, considering them as objects too mean for his jealousy. However, his persecution of the Christians was more severe than that of any of his predecessors. By his letters and edicts they were banished in several parts of the empire, and put to death with all the tortures of ingenious cruelty. The predictions of Chaldeans and astrologers also, concerning his death, gave him most violent apprehensions, and kept him in the most tormenting disquietude. As he approached towards the end of his reign, he would permit no criminal, or prisoner, to be brought into his presence, till they were bound in such a manner as to be incapable of injuring him; and he generally secured their chains in his own hands. His jealousies increased to that degree, that he ordered the gallery in which he walked to be set round with a pellucid stone, which served as a mirror to reflect the persons of all such as approached him from behind. Every omen and prodigy gave him fresh anxiety.

But a period was soon to be put to this monster's

cruelty. Among the number of those whom he at once caressed and suspected, was his wife Domitia, whom he had taken from Ailius Lama, her former husband. This woman, however, was become obnoxious to him, for having placed her affections upon one Paris, a player; and he resolved to dispatch her, with several others that he either hated or suspected. It was the tyrant's method to put down the names of all such as he intended to destroy in his tablets, which he kept about him with great circumspection. Domitia, fortunately happening to get a sight of them, was struck at finding her own name in the catalogue of those fated to destruction. She showed the fatal list to Norbanus and Petronius, prefects of the prætorian bands, who found themselves set down; as likewise to Stephanus, the comptroller of the household, who came into the conspiracy with alacrity. Parthenius also, the chief chamberlain, was of the number. These, after many consultations, determined on the first opportunity to put their design in execution; and at length fixed on the 18th day of September for the completion of their attempt. Domitian, whose death was every day foretold by the astrologers, who, of consequence, must at last be right in their predictions, was in some measure apprehensive of that day; and as he had been ever timorous, so he was now more particularly upon his guard. He had some time before secluded himself in the most secret recesses of his palace; and at midnight was so affrighted as to leap out of his bed, inquiring of his attendants what hour of the night it was. Upon their falsely assuring him that it was an hour later than that which he was taught to apprehend, quite transported, as if all danger was past, he prepared to go to the bath. Just then, Parthenius his chamberlain came to inform him that Stephanus the comptroller of his household desired to speak to him upon an affair of the utmost importance. The emperor having given orders that his attendants should retire, Stephanus entered with his hand in a scarf, which he had worn thus for some days, the better to conceal a dagger, as none were permitted to approach the emperor except unarmed. He began by giving information of a pretended conspiracy, and exhibited a paper in which the particulars were specified. While Domitian was reading the contents with an eager curiosity, Stephanus drew his dagger, and struck him in the groin. The wound not being mortal, Domitian caught hold of the assassin, and threw him upon the ground, calling out for assistance. He demanded also his sword, that was usually placed under his pillow; and a boy who attended in the apartment running to fetch it, found only the scabbard, for Parthenius had previously removed the blade. The struggle with Stephanus still continued: Domitian still kept him under, and at one time attempted to wrest the dagger from his hand, at another to tear out his eyes with his fingers. But Parthenius, with his freedman, a gladiator, and two subaltern officers, now coming in, ran all furiously upon the emperor, and dispatched him with many wounds. In the mean time, some of the officers of the guard being alarmed, came to his assistance, but too late to save him; however, they slew Stephanus on the spot.

When it was publicly known that Domitian was slain, the joy of the senate was so great, that being assembled with the utmost haste, they began to load his

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A conspiracy
formed against
him.

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He is murdered.

Rome. memory with every reproach. His statues were commanded to be taken down; and a decree was made, that all his inscriptions should be erased, his name struck out of the registers of fame, and his funeral omitted. The people, who now took little part in the affairs of government, looked on his death with indifference; the soldiers alone, whom he had loaded with favours, and enriched by largesses, sincerely regretted their benefactor. The senate, therefore, resolved to provide a successor before the army could have an opportunity of taking the appointment upon themselves; and Cocceius Nerva was chosen to the empire the very day on which the tyrant was slain.

351 Cocceius Nerva made emperor. Nerva was of an illustrious family, as most say, by birth a Spaniard, and above 65 years old when he was called to the throne. He was, at that time, the most remarkable man in Rome, for his virtues, moderation, and respect to the laws; and he owed his exaltation to the blameless conduct of his former life. When the senate went to pay him their submissions, he received them with his accustomed humility; while Arius Antonius, his most intimate friend, having embraced him with great familiarity, congratulated him on his accession to the empire: and indeed no emperor had ever shewn himself more worthy of the throne than Nerva; his only fault being that he was too indulgent, and often made a prey by his insidious courtiers.

352 His great clemency and moderation. However, an excess of indulgence and humanity were faults that Rome could easily pardon, after the cruelties of such an emperor as Domitian. Being long accustomed to tyranny, they regarded Nerva's gentle reign with rapture, and even gave his imbecility the name of benevolence. Upon coming to the throne, he solemnly swore that no senator of Rome should be put to death by his command, during his reign, though they gave ever so just a cause. He conferred great favours, and bestowed large gifts, upon his particular friends. His liberality was so extensive, that, upon his first promotion to the empire, he was constrained to sell his gold and silver plate, with his other rich moveables, to enable him to continue his liberalities. He released the cities of the empire from many severe impositions, which had been laid upon them by Vespasian; took off a rigorous tribute, which had been laid upon carriages; and restored those to their property who had been unjustly dispossessed by Domitian.

353 Makes several good laws. During his short reign he made several good laws. He particularly prohibited the castration of male children; which had been likewise condemned by his predecessor, but not wholly removed. He put all those slaves to death who had, during the last reign, informed against their masters. He permitted no statues to be erected to honour him, and converted into money such of Domitian's as had been spared by the senate. He sold many rich robes, and much of the splendid furniture of the palace, and retrenched several unreasonable expences at court. At the same time, he had so little regard for money, that when Herodes Atticus, one of his subjects, had found a large treasure, and wrote to the emperor how to dispose of it, he received for answer, that he might use it; but the finder still informing the emperor that it was a fortune too large for a private person, Nerva, admiring his honesty, wrote him word, that then he might abuse it.

A life of such generosity and mildness was not,

however, without its enemies. Calpurnius Crassus, with some others, formed a dangerous conspiracy to destroy him; but Nerva would use no severity: he rested satisfied with banishing those who were culpable, though the senate were for inflicting more rigorous punishments. But the most dangerous insurrection against his interests was from the prætorian bands; who, headed by Casparius Orianus, insisted upon revenging the late emperor's death, whose memory was still dear to them from his frequent liberalities. Nerva, whose kindness to good men rendered him still more obnoxious to the vicious, did all in his power to stop the progress of this insurrection; he presented himself to the mutinous soldiers, and, opening his bosom, desired them to strike there, rather than be guilty of so much injustice. The soldiers, however, paid no regard to his remonstrances; but, seizing upon Petronius and Parthenius, slew them in the most ignominious manner. Not content with this, they even compelled the emperor to approve of their sedition, and to make a speech to the people, in which he thanked the cohorts for their fidelity. So disagreeable a constraint upon the emperor's inclinations was, in the end, attended with the most happy effects, as it caused the adoption of Trajan to succeed him in the empire. Nerva perceived that in the present turbulent disposition of the times, he stood in need of an assistant in the empire, who might share the fatigues of govern-
ment, and contribute to keep the licentious in awe. For this purpose, setting aside all his own relations, he fixed upon Ulpius Trajan, an utter stranger to his family, who was then governor in Upper Germany, to succeed him. Having put his determination in execution, and performed the accustomed solemnities, he instantly sent off ambassadors to Cologne, where Trajan then resided, intreating his assistance in punishing those from whom he had received such an insult. The adoption of this admirable man, proved so great a curb to the licentiousness of the soldiery, that they continued in perfect obedience during the rest of this reign; and Casparius being sent to him, was, by his command, either banished or put to death.

354 Adopts Trajan as his successor. The adopting Trajan was the last public act of Nerva. In about three months after, having put himself in a violent passion with one Regulus a senator, he was seized with a fever, of which he shortly after died, after a short reign of one year four months and nine days. He was the first foreign emperor who reigned in Rome, and justly reputed a prince of great generosity and moderation. He is also celebrated for his wisdom, though with less reason, the greatest instance he gave of it, during his reign, being in the choice of his successor.

355 Death of Nerva. Trajan's family was originally from Italy, but he himself was born in Seville in Spain. He very early accompanied his father, who was a general of the Romans, in his expeditions along the Euphrates and the Rhine; and while yet very young, acquired a considerable reputation for military accomplishments. He enured his body to fatigue; he made long marches on foot; and laboured to acquire all that skill in war which was necessary for a commander. When he was made general of the army in Lower Germany, which was one of the most considerable employments in the empire, it made no alteration in his manners or way of living; and the commander was seen noway differing from the private tribune, except in his superior wisdom and vir-
tues.

356 Great qualities of Trajan. 3 H 2

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tues. The great qualities of his mind were accompanied with all the advantages of person. His body was majestic and vigorous; he was at that middle time of life which is happily tempered with the warmth of youth and the caution of age, being 42 years old. To these qualities were added, a modesty that seemed peculiar to himself alone; so that mankind found a pleasure in praising those accomplishments of which the possessor seemed no way conscious. Upon the whole, Trajan is distinguished as the greatest and the best emperor of Rome. Others might have equalled him in war, and some might have been his rivals in clemency and goodness; but he seems the only prince who united these talents in the greatest perfection, and who appears equally to engage our admiration and our regard. Upon being informed of the death of Nerva, he prepared to return to Rome, whither he was invited by the united intreaties of the state. He therefore began his march with a discipline that was for a long time unknown in the armies of the empire. The countries through which he passed were neither ravaged nor taxed, and he entered the city, not in a triumphant manner, though he had deserved it often, but on foot, attended by the civil officers of the state, and followed by his soldiers, who marched silently forward with modesty and respect. It would be tedious and unnecessary to enter into a detail of this good monarch's labours for the state. His application to business, his moderation to his enemies, his modesty in exaltation, his liberality to the deserving, and his frugality in his own expences; these have all been the subject of panegyric among his contemporaries, and they continue to be the admiration of posterity. Upon giving the prefect of the pretorian band the sword, according to custom, he made use of this remarkable expression, "Take this sword, and use it, if I have merit, for me; if otherwise, against me." After which he added, That he who gave laws was the first who was bound to observe them. His failings were his love of women, which, however, never hurried him beyond the bounds of decency; and his immoderate passion for war, to which he had been bred up from his childhood. The first war he was engaged in after his coming to the throne was with the Dacians, who, during the reign of Domitian, had committed numberless ravages upon the provinces of the empire. He therefore raised a powerful army, and with great expedition marched into these barbarous countries, where he was vigorously opposed by Decebalus, the Dacian king, who for a long time withstood his boldest efforts; but was at last entirely reduced, and his kingdom made a Roman province, See DACIA. At his return to Rome, he entered the city in triumph; and the rejoicings for his victories lasted for the space of 120 days.

Having thus given peace and prosperity to the empire, Trajan continued his reign, loved, honoured, and almost adored, by his subjects. He adorned the city with public buildings; he freed it from such men as lived by their vices; he entertained persons of merit with the utmost familiarity; and so little feared his enemies, that he could scarcely be induced to suppose that he had any.

357
He persecutes the Christians.

It had been happy for this great prince's memory, if he had shown equal clemency to all his subjects; but, about the ninth year of his reign, he was persuaded to

look upon the Christians with a suspicious eye. The extreme veneration which he professed for the religion of the empire, set him sedulously to oppose every innovation, and the progress of Christianity seemed to alarm him. A law had for some time before been passed, in which all Heteriæ, or societies dissenting from the established religion, were considered as illegal, being reputed nurseries of imposture and sedition. Under the sanction of this law, the Christians were persecuted in all parts of the empire. Great numbers of them were put to death, as well by popular tumults as by edicts and judicial proceedings. However, the persecution ceased after some time; for the emperor having advice from Pliny, the pro-consul in Bithynia, of the innocence and simplicity of the Christians, and of their inoffensive and moral way of living, he suspended their punishments. But a total stop was put to them upon Tiberianus the governor of Palestine's sending him word, That he was wearied out with executing the laws against the Galileans, who crowded to execution in such multitudes; that he was at a loss how to proceed. Upon this information, the emperor gave orders, that the Christians should not be sought after; but if any offered themselves, that they should suffer. In this manner the rage of persecution ceased, and the emperor found leisure to turn the force of his arms against the Armenians and Parthians, who now began to throw off all submission to Rome.

While he was employed in these wars, there was a ³⁵⁸ dreadful insurrection of the Jews in all parts of the empire. This wretched people, still insatuated, and ever expecting some signal deliverer, took the advantage of Trajan's absence in the east to massacre all the Greeks and Romans whom they got into their power, without reluctance or mercy. This rebellion first began in Cyrene, a Roman province in Africa; from thence the flame extended to Egypt, and next to the island of Cyprus. These places they in a manner dispeopled with ungovernable fury. Their barbarities were such, that they eat the flesh of their enemies, wore their skins, sawed them asunder, cast them to wild beasts, made them kill each other, and studied new torments by which to destroy them. However, these cruelties were of no long duration: the governors of the respective provinces making head against their tumultuous fury, soon treated them with a retaliation of cruelty, and put them to death, not as human beings, but as outrageous pests to society. As the Jews had practised their cruelties in Cyprus particularly, a law was publicly enacted, by which it was made capital for any Jew to set foot on the island.

During these bloody transactions, Trajan was ³⁵⁹ prosecuting his successes in the east. His first march was into Armenia, the king of which country had disclaimed all alliance with Rome, and received the ensigns of royalty and dominion from the monarch of Parthia. However, upon the news of Trajan's expedition, his fears were so great, that he abandoned his country to the invaders; while the greatest part of his governors and nobility came submissively to the emperor, acknowledging themselves his subjects, and making him the most costly presents. Having in this manner taken possession of the whole country, and gotten the king into his power, he marched into the dominions of the king

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me. king of Parthia. There entering the opulent kingdom of Mesopotamia, he reduced it into the form of a Roman province. From thence he went against the Parthians, marching on foot at the head of his army; in this manner crossing the rivers, and conforming to all the severities of discipline which were imposed on the meanest soldier. His successes against the Parthians were great and numerous. He conquered Syria and Chaldea, and took the famous city of Babylon. Here, attempting to cross the Euphrates, he was opposed by the enemy, who were resolved to stop his passage: but he secretly caused boats to be made upon the adjoining mountains; and bringing them to the water side, passed his army with great expedition, not, however, without great slaughter on both sides. From thence he traversed tracts of country which had never before been invaded by a Roman army, and seemed to take a pleasure in pursuing the same march which Alexander the Great had formerly marked out for him. Having passed the rapid streams of the Tigris, he advanced to the city Ctesiphon, which he took, and opened himself a passage into Persia, where he made many conquests, that were rather splendid than serviceable. After subduing all the country bordering on the Tigris, he marched southward to the Persian gulph, where he subdued a monarch who possessed a considerable island made by the divided streams of that river. Here, winter coming on, he was in danger of losing the greatest part of his army by the inclemency of the climate and the inundations of the river. He therefore with indefatigable pains fitted out a fleet, and sailing down the Persian gulph, entered the Indian ocean, conquering, even to the Indies, and subduing a part of them to the Roman empire. He was prevented from pursuing further conquests in this distant country, both by the revolt of many of the provinces he had already subdued, and by the scarcity of provisions, which seemed to contradict the reports of the fertility of the countries he was induced to invade. The inconveniences of increasing age also contributed to damp the ardour of this enterprise, which at one time he intended to pursue to the confines of the earth. Returning, therefore, along the Persian gulph, and sending the senate a particular account of all the nations he had conquered, the names of which alone composed a long catalogue, he prepared to punish those countries which had revolted from him. He began by laying the famous city of Edeffa, in Mesopotamia, in ashes; and in a short space of time, not only retook all those places which had before acknowledged subjection, but conquered many other provinces, so as to make himself master of the most fertile kingdoms of all Asia. In this train of successes he scarce met with a repulse, except before the city Atræ, in the deserts of Arabia. Wherefore judging that this was a proper time for bounding his conquests, he resolved to give a master to the countries he had subdued. With this resolution he repaired to the city Ctesiphon, in Persia; and there, with great ceremony, crowned Parthaspates king of Parthia, to the great joy of all his subjects. He established another king also over the kingdom of Albania, near the Caspian sea. Then placing governors and lieutenants in other provinces, he resolved to return to his capital in a more magnificent manner than any of his predecessors had done before him. He accordingly left Adrian general of all

his forces in the east; and continued his journey towards Rome, where the most magnificent preparations were made for his arrival. However, he had not got farther than the province of Cilicia, when he found himself too weak to proceed in his usual manner. He therefore caused himself to be carried on ship-board to the city of Seleucia, where he died of the apoplexy, having been attacked by that disorder once before. During the time of his indisposition, his wife Plotina constantly attended near him; and, knowing the emperor's dislike to Adrian, it is thought forged the will, by which he was adopted to succeed.

Trajan died in the 63d year of his age, after a reign of nineteen years six months and fifteen days. ³⁶⁰ How and is succeeded by Adrian. highly he was esteemed by his subjects appears by their manner of blessing his successors, always wishing them the fortune of Augustus, and the goodness of Trajan. His military virtues, however, upon which he chiefly valued himself, produced no real advantages to his country; and all his conquests disappeared, when the power was withdrawn that enforced them.

Adrian was by descent a Spaniard, and his ancestors were of the same city where Trajan was born. He was nephew to Trajan, and married to Sabina, his grand-niece. When Trajan was adopted to the empire, Adrian was a tribune of the army in Mæsia, and was sent by the troops to congratulate the emperor on his advancement. However, his brother-in-law, who desired to have an opportunity of congratulating Trajan himself, supplied Adrian with a carriage that broke down on the way. But Adrian was resolved to lose no time, and performed the rest of the journey on foot. This assiduity was very pleasing to the emperor; but he disliked Adrian from several more prevailing motives. His kinsman was expensive, and involved in debt. He was, besides, inconstant, capricious, and apt to envy another's reputation. These were faults, that, in Trajan's opinion, could not be compensated either by his learning or his talents. His great skill in the Greek and Latin languages, his intimate acquaintance with the laws of his country and the philosophy of the times, were no inducement to Trajan, who, being bred himself a soldier, desired to have a military man to succeed him. For this reason it was that the dying emperor would by no means appoint a successor; fearful, perhaps, of injuring his great reputation, by adopting a person that was unworthy. His death, therefore, was concealed for some time by Plotina his wife, till Adrian had founded the inclinations of the army, and found them firm in his interests. They then produced a forged instrument, importing that Adrian was adopted to succeed in the empire. By this artifice he was elected by all orders of the state, though then absent from Rome, being left at Antioch as general of the forces in the east.

Upon Adrian's election, his first care was to write the senate, excusing himself for assuming the empire without their previous approbation; imputing it to the hasty zeal of the army, who rightly judged that the senate ought not long to remain without a head. He then began to pursue a course quite opposite to that of his predecessor, taking every method of declining war, and promoting the arts of peace. He was quite satisfied with preserving the ancient limits of the empire, and seemed no way ambitious of extensive conquest.

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361
He abandons all the eastern conquests of Adrian.

For this reason he abandoned all the conquests which Trajan had made, judging them to be rather an inconvenience than an advantage to the empire; and made the river Euphrates the boundary of the empire, placing the legions along its banks to prevent the incursions of the enemy.

Having thus settled the affairs of the east, and leaving Severus governor of Syria, he took his journey by land to Rome, sending the ashes of Trajan thither by sea. Upon his approach to the city, he was informed of a magnificent triumph that was preparing for him; but this he modestly declined, desiring that those honours might be paid to Trajan's memory which they had designed for him. In consequence of this command, a most superb triumph was decreed, in which Trajan's statue was carried as a principal figure in the procession, it being remarked that he was the only man that ever triumphed after he was dead. Not content with paying him these extraordinary honours, his ashes were placed in a golden urn, upon the top of a column 140 feet high. On this were engraven the particulars of all his exploits in basso relievo; a work of great labour, and which is still remaining. These testimonies of respect to the memory of his predecessor did great honour to the heart of Adrian. His virtues, however, were contrasted by a strange mixture of vices; or to say the truth, he wanted strength of mind to preserve his general rectitude of character without deviation. As an emperor, however, his conduct was most admirable, as all his public transactions appear dictated by the soundest policy and the most disinterested wisdom. But these being already enumerated under the article ADRIAN, it would be superfluous to repeat them in this place. He was succeeded by Marcus Antoninus, afterwards surnamed the *Pious*, whom he had adopted some time before his death. See *ANTONINUS Pius*.

362
Causes of the decline of the Roman empire.

From the beginning of the reign of Antoninus Pius, we may date the decline of the Roman empire. From the time of Cæsar to that of Trajan, scarce any of the emperors had either abilities or inclination to extend

the limits of the empire, or even to defend it against the barbarous nations who surrounded it. During all this space, only some inconsiderable provinces to the northward of Italy, and part of the island of Britain, had been subjugated. However, as yet, nothing was lost; but the degeneracy and corruption of the people had sown those seeds of dissolution which the empire quickly began to feel. The disorders were grown to such an height, that even Trajan himself could not cure them. Indeed his eastern conquests could scarce have been preserved though the republic had been existing in all its glory; and therefore they were quietly resigned by his successor Adrian, as too distant, disaffected, and ready to be over-run by the barbarous nations. The province of Dacia, being nearer to the centre of government, was more easily preserved; and of consequence remained for a long time subject to Rome. During the 23 years of the reign of Antoninus, few remarkable events happened. The historians of those times are excessive in their praises of his justice, generosity, and other virtues, both public and private. He put a stop to the persecution of the Christians, which raged in the time of Trajan and Adrian, and reduced the Brigantes, a tribe of Britons, who had revolted. However, during his reign, several calamities befel the empire. The Tiber, overflowing its banks, laid the lower part of Rome under water. The inundation was followed by a fire, and this by a famine, which swept off great numbers, though the emperor took the utmost care to supply the city from the most distant provinces. At the same time the cities of Narbonne in Gaul, and Antioch in Syria, together with the great square in Carthage, were destroyed by fire; however, the emperor soon restored them to their former condition. He died in the year 163, universally lamented by his subjects, and was succeeded by Marcus Aurelius, surnamed the *Philosopher*, whom he had adopted towards the latter end of his reign.

The transactions of this emperor the reader will find related under the article *ANTONINUS Philosophus* (A).

After

(A) As, after the death of Marcus Aurelius, the Roman empire declined very fast, it may not be amiss here to give some account of the military and other establishments of the Roman emperors. Mr Gibbon observes, that, in the times of the commonwealth, the use of arms was confined to those who had some property to defend, and an interest in maintaining the laws which were proposed to be enacted. But, as the public freedom declined, and war became degraded into a trade, those who had the property of the country chose rather to hire others than to expose their own persons, as is the case with our modern armies. Yet, even after all consideration of property had been laid aside among the common soldiers, the officers continued to be chosen from among those who had a liberal education, together with a good share of property. However, as the common soldiers, in which the strength of an army consists, had now no more of that virtue called *patriotism*, the legions which were formerly almost invincible, no longer fought with the same ardour as before. In former times, the profession of a soldier was more honourable than any other; but, when the soldiers came to be looked upon as hirelings, the honour of the profession sunk of course, and, by this means, one of the strongest motives which the soldiers had to submit to their severe discipline, and exert themselves against their enemies, was removed. On the very first entrance of a soldier into the Roman service, a solemn oath was administered to him, by which he engaged never to desert his standard; to submit his own will to that of his leaders, and to sacrifice his life for the safety of the emperor and the empire. The attachment which the Romans had to their standards was indeed astonishing. The golden eagle, which appeared in the front of the legion, was almost an object of adoration with them; and it was esteemed impious, as well as ignominious, to abandon that sacred ensign in the time of danger. The centurions had a right to punish with blows, the generals with death; and it was an inflexible maxim of the Roman discipline, that a good soldier should dread his officers much more than the enemy.

Notwithstanding all this, so sensible were the Romans of the insufficiency of mere valour without skill, that
military

After the death of Marcus Aurelius, his son Commodus succeeded to the imperial throne without opposition. He was in every respect unworthy of his fa-

ther; and so prone to vice, that he was generally believed to have been the son, not of Marcus Aurelius, but of a celebrated gladiator, with whom the empress Faustina

Rome.

military exercises were the unremitted object of their discipline. The recruits and young soldiers were constantly trained both in the morning and evening; and even the veterans were not excused from the daily repetition of their exercise. Large sheds were erected in the winter-quarters of the troops, that these useful labours might not be interrupted by tempestuous weather, and the weapons used in these imitations of war were always twice as heavy as those made use of in real action. The soldiers were diligently instructed to march, to run, leap, swim, carry heavy burdens, and handle every species of weapon either for offence or defence; to form a variety of evolutions; and to move to the sound of flutes in the pyrrhic or martial dance. It was the policy of the ablest generals, and even of the emperors themselves, to encourage these military studies by their presence and example; and we are informed that Adrian, as well as Trajan, frequently condescended to instruct the unexperienced soldiers, to reward the diligent, and sometimes to dispute with them the prize of superior strength and dexterity. Under the reigns of those princes, the science of tactics was cultivated with success; and, as long as the empire retained any vigour, their military instructions were respected as the most perfect model of Roman discipline.

From the foundation of the city, as the Romans had in a manner been continually engaged in war, many alterations had taken place in the constitution of the legions. In the time of the emperors, the heavy-armed infantry, which composed its principal strength, was divided into 10 cohorts and 55 companies, under the orders of a correspondent number of tribunes and centurions. The first cohort, which always claimed the post of honour and the custody of the eagle, was formed of 1105 soldiers, the most approved for valour and fidelity. The remaining nine cohorts consisted each of 555; and the whole body of legionary infantry consisted of 6100 men. Their arms were uniform, and excellently adapted to the nature of their service; an open helmet with a lofty crest; a breast-plate or coat of mail; greaves on their legs, and a large buckler on their left arm. Their buckler was of an oblong and concave figure, four feet in length, and two and an half in breadth; framed of a light wood, covered with a bull's hide, and strongly guarded with brass plates. Besides a lighter spear, the legionary carried the pilum, a ponderous javelin about six feet long, and terminated by a massy triangular point of steel 18 inches in length. This weapon could do execution at the distance of 10 or 12 paces; but its stroke was so powerful, that no cavalry durst venture within its reach, and scarce any armour could be formed proof against it. As soon as the Roman had darted his pilum, he drew his sword, and rushed forward to close with the enemy. It was a short well-tempered Spanish blade with a double edge, and equally calculated for the purposes of pushing and striking; but the soldier was always instructed to prefer the former use of his own weapon, as his body remained thereby the less exposed, while at the same time he inflicted a more dangerous wound on his adversary. The legion was usually drawn up eight deep; and the regular distance of three feet was left between the files and ranks. Thus the soldier possessed a free space for his arms and motions; and sufficient intervals were allowed, through which seasonable reinforcements might be introduced to the relief of the combatants. The cavalry, without which the force of the legion remained imperfect, was divided into ten troops or squadrons: the first, as the companion of the first cohort, consisted of 132 men; whilst each of the other nine amounted only to 66. The entire establishment formed a body of 726 horse, naturally connected with its respective legion; but occasionally acting in the line, and composing a part of the wings of the army. The cavalry of the ancient republic was composed of the noblest youths of Rome and Italy, who, by performing their military service on horseback, prepared themselves for the offices of senator and consul; but after the alteration of manners and government which took place at the end of the commonwealth, the most wealthy of the equestrian order were engaged in the administration of justice and of the revenue; and, whenever they embraced the profession of arms, they were immediately entrusted with a troop of horse or a cohort of foot, and the cavalry, as well as the infantry, were recruited from the provinces. The horses were bred for the most part in Spain, or in Cappadocia. The Roman troopers despised the complete armour which encumbered the cavalry of the east. Instead of this, their arms consisted only of an helmet, an oblong shield, light boots, and a coat of mail. A javelin and a long broad sword were their principal offensive weapons. They seem to have borrowed the use of lances and iron maces from the barbarians.

Besides the legionaries, the Romans, especially in the times of the emperors, began to take auxiliaries into their pay. Considerable levies were regularly made among those provincials who had not yet attained to the rank of Roman citizens. Many dependent princes and communities, dispersed round the frontiers, were permitted, for a while, to hold their freedom and security by the tenure of military service. Even select troops of barbarians were compelled to enter into the service; which was afterwards found to be a most destructive expedient, not only as it carried the Roman military skill among barbarians who were otherwise unacquainted with it, but it gave these auxiliaries themselves frequent opportunities of revolting, and at last of dethroning the emperors at pleasure, and even of overturning the empire itself. The number of auxiliaries was seldom inferior to that of the legionaries themselves. The bravest and most faithful bands among them were placed under the command of prefects and centurions, and severely trained in the arts of Roman discipline; but the far greater part retained those arms which they had used in their native country. By this institution, each legion, to whom a certain number of auxiliaries was allotted, contained within itself every species of lighter troops, and of missile weapons;

and

Rome. Faustina was supposed to be intimate. According to Mr Gibbon, however, Commodus was not, as has been represented, a tiger born with an insatiate thirst of human blood, and capable from his infancy of the most inhuman actions. Nature had formed him of a weak, rather than a wicked disposition. His simplicity and timidity

and was capable of encountering every nation with the advantages of its respective arms and discipline. Nor was the legion destitute of what, in modern language, would be styled a train of artillery. This consisted of 10 military engines of the largest size, and 56 smaller ones; but all of them, either in an oblique or horizontal manner, discharged stones and darts with irresistible violence.

The camp of a Roman legion presented the appearance of a fortified city. As soon as the space was marked out, the pioneers carefully levelled the ground, and removed every impediment that might interrupt its perfect regularity. Its form was an exact quadrangle; and it may be computed that a square of 700 yards was sufficient for the encampment of 20,000 Romans, though a similar number of modern troops would expose to the enemy a front of more than treble that extent. In the midst of the camp, the prætorium, or general's tent, arose above the others; and the cavalry, infantry, and auxiliaries, had each their respective stations appointed them. The streets were broad, and perfectly straight; and a vacant space of 200 feet was left on all sides between the tents and rampart. The rampart itself was 12 feet high, armed with a line of strong and intricate palisades, and defended by a ditch 12 feet deep and as much broad. This labour was performed by the legions themselves, to whom the use of the spade and the pick-axe was no less familiar than that of the sword or pilum. Whenever the trumpet gave the signal of departure, the camp was almost instantly broke up, and the troops fell into their ranks without delay or confusion. Besides their arms, which the soldiers scarcely considered as an incumbrance, they were laden with their kitchen-furniture, the instruments of fortification, and provisions for many days. Under this weight, which would oppress a modern soldier, they were taught to advance by a regular step, near 20 miles in six hours. On the appearance of an enemy, they threw aside their baggage, and, by easy and rapid evolutions, converted the column of march into an order of battle. The slingers and archers skirmished in the front; the auxiliaries formed the first line, and were seconded or sustained by the legions. The cavalry covered the flanks, and the military engines were placed in the rear.

The numbers of the Roman armies are not easily calculated with any tolerable accuracy. We may compute, however, that the legion, which consisted of 6831 Romans, might, with its attendant auxiliaries, amount to 12,500 men. The peace establishment of Adrian and his successors was composed of no fewer than 30 of these formidable brigades; and most probably formed an army of 370,000 men. Instead of being confined within the walls of fortified cities, which the Romans considered as the refuge of weakness or pusillanimity, the legions were encamped on the banks of the great rivers, and along the frontiers of the barbarians. Three legions were sufficient for Britain. The principal strength lay upon the Rhine and Danube, and consisted of 16 legions, disposed in the following proportions: two in the Lower, and three in the Upper Germany; one in Rhætia; one in Noricum; four in Pannonia; three in Mæsia; and two in Dacia. The defence of the Euphrates was intrusted to eight legions, six of whom were placed in Syria, and the other two in Cappadocia. With regard to Egypt, Africa, and Spain, as they were far removed from any important scene of war, a single legion maintained the domestic tranquillity of each of those great provinces. Italy was defended by the city cohorts and prætorian guards formerly mentioned. These differed nothing from the legions in their arms and institutions, except in a more splendid appearance, and a less rigid discipline.

The Roman navy, though sufficient for every useful purpose of government, never seemed adequate to the greatness of the empire. The policy of the emperors was directed only to preserve the peaceful dominion of the Mediterranean sea, which was included within their dominions, and to protect the commerce of their subjects. Two permanent fleets were stationed by Augustus, one at Ravenna on the Adriatic, and the other at Misenum in the bay of Naples. A very considerable force was also stationed at Frejus in Provence; and the Euxine was guarded by 40 ships and 3000 soldiers. To all these we may add the fleet which preserved the communication between Gaul and Britain, and a great number of vessels constantly maintained on the Rhine and Danube to harass the enemy, or intercept the passage of the barbarians. The whole military establishment by sea and land amounted to about 450,000 men.

It was not, however, to this formidable power alone that the empire owed its greatness. The policy of the laws contributed as much to its support as the martial establishment itself. According to Mr Gibbon, though the provinces might occasionally suffer from the partial abuse of delegated authority, the general principle of government was wise, simple, and beneficent. Among these beneficent principles he reckons that of universal toleration; but to this there were several exceptions: for the British Druids were persecuted and destroyed by the Romans on account of their religion; the Egyptians and Jews were sometimes persecuted; and the Christians were frequently so, and that even under the very best emperors, Trajan and Marcus Aurelius. However, as a very general toleration of religious sentiments did take place under the heathen emperors of Rome, we must certainly look upon this as one of the causes of the prosperity of the empire.

Another thing which greatly contributed to the strength and prosperity of the empire, was the extending of the freedom of Rome to so many people. "The narrow policy (says Mr Gibbon) of preserving, without any foreign mixture, the pure blood of the ancient citizens, had checked the fortune and hastened the ruin of Athens and Sparta. During the most flourishing era of the Athenian commonwealth, the number of citizens decreased gradually from about 30,000 to 21,000. If, on the contrary, we study the growth of the Roman republic, we

may

ome. timidity rendered him the slave of his attendants, who gradually corrupted his mind. His cruelty, which at first obeyed the dictates of others, degenerated into habit, and at length became the ruling passion of his soul." But, however this may be, it is certain that the actions of this emperor were flagitious almost beyond
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Rome.

may discover, that notwithstanding the incessant demands of wars and colonies, the citizens, who, in the time of Servius Tullius, amounted to no more than 83,000, were multiplied, before the end of the social war, to the number of 463,000 men able to bear arms in the service of their country. When the allies of Rome claimed an equal share of honours and privileges, the senate preferred the chance of war to a concession; however, at last, all the Italian states, except the Samnites and Lucanians, were admitted into the bosom of the republic, and soon contributed to the ruin of public freedom. When the popular assemblies had been suppressed by the administration of the emperors, the conquerors were distinguished from the vanquished nations only as the first and most honourable order of subjects; and their increase, however rapid, was no longer exposed to the same dangers. Yet the princes who adopted the maxims of Augustus, guarded with the strictest care the dignity of the Roman name, and diffused the freedom of the city with a prudent liberality.

"Till the privileges of the Romans had been progressively extended to all the inhabitants of the empire, an important distinction was preserved between Italy and the provinces. The estates of the Italians were exempted from taxes, and their persons from the arbitrary jurisdiction of governors. From the foot of the Alps to the extremity of Calabria, all the natives of Italy were born citizens of Rome. The provinces of the empire were destitute of any public force or constitutional freedom. The free states and cities, which had embraced the cause of Rome, were insensibly sunk into real servitude. The public authority was everywhere engrossed by the ministers of the senate and of the emperors, and that authority was absolute. But the same salutary maxims of government which had secured the peace and obedience of Italy, were extended to the most distant conquests. A nation of Romans was gradually formed in the provinces, by the double expedient of introducing colonies, and of admitting the most faithful and deserving provincials to the freedom of Rome.

"So sensible were the Romans of the influence of language over national manners, that it was their most serious care to extend, with the progress of their arms, the use of the Latin tongue. The eastern provinces, however, were less docile in this respect than the western ones; and this obvious difference made a distinction between the two portions of the empire, which became very remarkable when it began to decline. Nor was the influence of the Greek language and sentiments confined to the narrow limits of that once celebrated country. Their empire, by the progress of colonies and conquest, had been diffused from the Adriatic to the Euphrates and Nile. Asia was covered with Greek cities, and the long reign of the Macedonian kings had introduced a silent revolution into Syria and Egypt. In their pompous courts, those princes united the elegance of Athens with the luxury of the east; and the example of the court was imitated, at an humble distance, by the higher ranks of their subjects. Such was the general division of the Roman empire into the Latin and Greek languages; to which we may add a third distinction for the body of the natives in Syria, and especially in Egypt. The use of their ancient dialects, by secluded them from the commerce of mankind, checked the improvements of these barbarians. The slothful effeminacy of the former exposed them to the contempt, the sullen ferociousness of the latter excited the aversion, of the Roman conquerors. They seldom desired or deserved the freedom of the city; and it is remarked, that more than 230 years elapsed after the ruin of the Ptolemies, before a native Egyptian was admitted into the senate of Rome.

"The number of subjects who acknowledged the laws of Rome, of citizens, of provincials, and of slaves, cannot now be fixed with such accuracy as the importance of the object would deserve. We are informed, that when the emperor Claudius exercised the office of censor, he took an account of 6,945,000 Roman citizens; who, with the proportion of women and children, must have amounted to about 20,000,000 of souls. The multitude of subjects of an inferior rank was uncertain and fluctuating: but after weighing with attention every circumstance which could influence the balance, it seems probable that there existed, in the time of Claudius, about twice as many provincials as there were Roman citizens, of either sex, and of every age; and that the slaves were at least equal in number to the free inhabitants of the Roman world. The total amount of this imperfect calculation would rise to about 120 millions of persons; a degree of population which possibly exceeds that of modern Europe, and forms the most numerous society that has ever been united under the same system of government.

"Domestic peace and union were the natural consequences of the moderate and comprehensive policy embraced by the Romans. The vanquished nations, blended into one great people, resigned the hope, nay even the wish, of resuming their independence, and scarcely considered their own existence as distinct from the existence of Rome. The established authority of the emperors pervaded, without an effort, the wide extent of their dominions, and was exercised with the same facility on the banks of the Thames, or of the Nile, as on those of the Tiber. The legions were destined to serve against the public enemy, and the civil magistrate seldom required the aid of a military force.

"It was scarcely possible that the eyes of contemporaries should discover in the public felicity the latent causes of decay and corruption. This long peace, and the uniform government of the Romans, introduced a slow and secret poison into the vitals of the empire. The minds of men were gradually reduced to the same level; the fire of genius was extinguished, and even the military spirit evaporated. The natives of Europe were brave and robust. Spain, Gaul, Britain, and Illyricum, supplied the legions with excellent soldiers, and constituted the

real

Rome.

a parallel. Many very strange instances of his cruelty are related by the ancients. He is said to have cut asunder a corpulent man whom he saw walking along the street; partly, to try his own strength, in which he greatly excelled; and partly, as he himself owned, out of curiosity, to see his entrails drop out at once. He took pleasure in cutting off the feet, and putting out the eyes, of such as he met in his rambles through the city; telling the former, after he had thus maimed them, that now they belonged to the nation of *Monopodii*; and the latter, that they were now become *Luscini*, alluding to the word *luscus*, "one-eyed." Some he murdered because they were negligently dressed; others, because they seemed to be trimmed with too much nicety. He pretended to great skill in surgery, especially at letting blood: but sometimes, instead of easing by that means those whom he visited, or who were prevailed upon to recur to him, he cut off, by way of diversion, their ears and noses. His lewdness and debaucheries were equally remarkable, and equally infamous. However, he is said to have been exceedingly well skilled in archery, and to have performed incredible feats in that way. He excelled all men in strength; and is said to have run an elephant through with his spear, and to have killed in the amphitheatre 100 lions, one after another, and each of them at one blow. Forgetful of his dignity, he entered the lists with the common gladiators, and came off conqueror 735 times; whence he often subscribed himself in his letters, *the conqueror of 1000 gladiators*.

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He concludes a
peace with
the barbarians.

The public transactions of this reign were but very few. Soon after his father's death, Commodus concluded a peace with the Marcommani, Quadi, &c. on

the following conditions. 1. That they should not settle within five miles of the Danube. 2. That they should deliver up their arms, and supply the Romans with a certain number of troops when required. 3. That they should assemble but once a month, in one place only, and that in presence of a Roman centurion. 4. That they should not make war upon the Jazyges, Buri, or Vandals, without the consent of the people of Rome. On the other hand, Commodus promised to abandon, which accordingly he did, all the castles and fortresses held by the Romans in their country, excepting such as were within five miles of the Danube. With the other German nations, whom his father had almost entirely reduced, he concluded a very dishonourable peace; nay, of some he purchased it with large sums of money.

Soon after the return of the emperor to Rome, his sister Lucilla, perceiving that he was universally abhorred on account of his cruelty, formed a conspiracy against his life. Among the conspirators were many senators of distinction. It was agreed among them that they should fall upon the emperor while he was going to the amphitheatre through a narrow and dark passage; and that Claudius Pompeianus, to whom Lucilla had betrothed her daughter, should give the first blow. But he, instead of striking at once, showed him the naked dagger, and cried out, "This present the senate sends you:" so that the guards had time to rescue the emperor, and to seize the conspirators, who were soon after put to death. The emperor banished his sister to the island of Capreae, where he soon after caused her to be privately murdered.

The favourite minister of Commodus was one *Pennis*;

real strength of the monarchy. Their personal valour remained; but they no longer possessed that public courage which is nourished by the love of independence, the sense of national honour, the presence of danger, and the habit of command. They received laws and governors from the will of their sovereign, and trusted for their defence to a mercenary army. The posterity of their boldest leaders were contented with the rank of citizens and subjects. The most aspiring spirits resorted to the court or standard of the emperors; and the deserted provinces, deprived of political strength or union, insensibly sunk into the languid indifference of private life.

"The love of letters, almost inseparable from peace and refinement, was fashionable among the subjects of Adrian and the Antonines; who were themselves men of learning and curiosity. It was diffused over the whole extent of their empire; the most northern tribes of Britons had acquired a taste for rhetoric; Homer as well as Virgil were transcribed and studied on the banks of the Rhine and Danube; and the most liberal rewards sought out the faintest glimmerings of literary merit. The sciences of physic and astronomy were cultivated with some degree of reputation; but, if we except Lucian, an age of indolence passed away without producing a single writer of genius who deserved the attention of posterity. The authority of Plato, of Aristotle, of Zeno, and Epicurus, still reigned in the schools; and their systems, transmitted with blind deference from one generation of disciples to another, precluded every generous attempt to correct the errors or enlarge the bounds of the human mind. The beauties of the poets and orators, instead of kindling a fire like their own, produced only servile imitations; or, if any ventured to deviate from these models, they deviated at the same time from good sense and propriety. The provincials of Rome, trained by an uniform artificial education, were engaged in a very unequal competition with those bold ancients, who, by expressing their genuine feelings in their native tongue, had already occupied every place of honour. The name of poet was almost forgotten; that of orator was usurped by the sophists. A cloud of critics, of compilers, of commentators, darkened the face of learning, and the decline of genius was soon followed by the corruption of taste.

"Longinus observes and laments the degeneracy of his contemporaries, which debased their sentiments, enervated their courage, and depressed their talents; comparing them to pigmies, whose stature has been diminished by constant pressure on their limbs. This diminutive stature of mankind was constantly sinking below the old standard, and the Roman world was indeed peopled by a race of pigmies; when the fierce giants of the north broke in and mended the puny breed. They restored a manly freedom; and, after the revolution of ten centuries, freedom became the happy parent of taste and science."

ennis; who in oppression and cruelty seems to have been nothing inferior to those of the most tyrannical emperors. During the first part of the reign of Commodus, he ruled with an absolute sway; but at last was torn in pieces by the enraged soldiery, whom he had offended by his too great severity. He was succeeded in his place by a freedman named *Cleander*; for the emperor himself was so much taken up with his pleasures, that he could not bestow even a moment on the affairs of state. The new minister abused his power in a more flagrant manner than even his predecessor had done. By him all things were openly set to sale; offices, provinces, public revenues, justice, and the lives of men both innocent and guilty. The minister, who ruled the emperor without controul, infused such terrors into his timorous mind, that he changed the captains of his guards almost continually. One *Niger* enjoyed the dignity only six hours; another only five days; and several others a still shorter space. Most of those officers lost their lives along with their employments; being accused of treason by *Cleander*, who continually solicited, and at last obtained, that important post for himself.

In the year 187 happened a remarkable revolt. One *Maternus*, a common soldier, having fled from his colours, and being joined by many others guilty of the same crime, grew in a short time so powerful, the banditti flocking to him from all parts, that he over-ran and plundered great part of Gaul and Spain; stormed the strongest cities; and struck the emperor and people of Rome with such terror, that troops were raised, and armies dispatched against him. *Pescennius Niger* was sent to make head against him in Gaul, where he became very intimate with *Severus*, who was then governor of Lyons, and who wrote a letter to the emperor, commending the prudent and gallant behaviour of *Niger* in pursuing the rebels. *Maternus*, finding himself reduced to great straits, divided his men into several small bands, and marched privately with them by different ways into Italy; having nothing less in view than to murder the emperor during the solemnity which was kept annually in honour of the mother of the gods, and on his death to seize upon the empire for himself. They all arrived at Rome undiscovered; and several of his men had already mixed themselves with the emperor's guards, when others of his own party betrayed him. He was immediately seized and executed; and his death put an end to the disturbances which some of his followers had begun to raise in other provinces. In the same year broke out the most dreadful plague, says *Dio Cassius*, that had been known. It lasted two or three years; and raged with the greatest violence at Rome, where it frequently carried off 2000 persons a-day. The following year a dreadful fire, which consumed a great part of the city, was kindled by lightning; and at the same time the people were afflicted with a dreadful famine, occasioned, according to some authors, by *Cleander*, who, having now in view nothing less than the sovereignty itself, bought up underhand all the corn, in order to raise the price of it, and gain the affections of the soldiery and people by distributing it among them. Others tell us, however, that *Papirius Dionysius*, whose province it was to supply the city with provisions, contributed towards the famine, in order to make the people rise against *Clean-*

der. Be this as it will, the populace ascribed all their calamities to this hated minister; and one day, while the people were celebrating the Circassian games, a troop of children, having at their head a young woman of an extraordinary stature and fierce aspect, entering the circus, began to utter aloud many bitter invectives and dreadful curses against *Cleander*; which being for some time answered by the people with other invectives and curses, the whole multitude rose all of a sudden, and flew to the place where *Cleander* at that time resided with the emperor. There, renewing their invectives, they demanded the head of the minister who had been the occasion of so many calamities. Hereupon *Cleander* ordered the prætorian cavalry to charge the multitude; which they did accordingly, driving them with great slaughter into the city. But the populace discharging showers of stones, bricks, and tiles, from the tops of the houses and from the windows, and the city-guards at the same time taking part with the people, the prætorian horse were soon obliged to save themselves by flight: nor was the slaughter ended till the emperor, apprised of the tumult, caused the head of *Cleander* to be struck off and thrown out to the enraged populace. The emperor himself did not long survive *Cleander*; being cut off by a conspiracy of *Marcia* his favourite concubine, *Lætus* captain of the guards, and *Eclectus* his chamberlain.

No sooner was the death of *Commodus* known, than the senate assembled, and declared him a public enemy, loading him with curses, ordering his statues to be broken to pieces, and his name to be rased out of all public inscriptions; and demanded his body, that it might be dragged through the streets, and thrown into the Tiber. But *Helvius Pertinax*, whom the conspirators had previously designed for the empire, and who had already assumed it, prevented such an outrage, by letting the senators know that *Commodus* was already buried. This extraordinary personage had passed through many changes of fortune. He was originally the son of an enfranchised slave, called *Ælius*, who only gave him so much learning as to qualify him for keeping a little shop in the city. He then became a schoolmaster, afterwards studied the law, and after that became a soldier; in which station his behaviour was such as caused him to be soon made captain of a cohort against the Parthians. Being thus introduced to arms he went through the usual gradation of military preferment in Britain and *Mæsia*, until he became the commander of a legion under *Aurelius*. In this station he performed such excellent services against the barbarians, that he was made consul, and successively governor of *Dacia*, *Syria*, and *Asia Minor*. In the reign of *Commodus* he was banished; but soon after recalled, and sent into Britain to reform the abuses in the army. In this employment his usual extraordinary fortune attended him: he was opposed by a sedition among the legions, and left for dead among many others that were slain. However, he got over this danger, severely punished the mutineers, and established regularity and discipline among the troops he was sent to command. From thence he was removed into *Africa*, where the sedition of the soldiers had like to have been as fatal to him as in his former government. Removing from *Africa*, and fatigued with an active life, he betook himself to retirement: but *Commodus*,

Rome.

willing to keep him still in view, made him prefect of the city; which employment he filled, when the conspirators fixed upon him as the properest person to succeed to the empire.

369
His excel-
lent reign.

His being advanced by Commodus only served to increase his fears of falling as an object of his suspicions; when therefore the conspirators repaired to his house by night, he considered their arrival as a command from the emperor for his death. Upon Latus entering his apartment, Pertinax, without any show of fear, cried out, That for many days he had expected to end his life in that manner, wondering that the emperor had deferred it so long. However, he was not a little surprised when informed of the real cause of their visit; and being strongly urged to accept of the empire, he at last complied with their offer.

Being carried to the camp, Pertinax was proclaimed emperor: soon after the citizens and senate consented; the joy for the election of a new sovereign being scarce equal to that for the death of the former. The provinces quickly followed the example of Rome; so that he began his reign with universal satisfaction to the whole empire, in the 68th year of his age.

Nothing could exceed the wisdom and justice of this monarch's reign the short time it continued. He punished all those who had served to corrupt the late emperor, and disposed of his ill-got possessions to public uses. He attempted to restrain the licentiousness of the prætorian bands, and put a stop to the injuries and insolences they committed against the people. He sold most of the buffoons and jesters of Commodus as slaves; particularly such as had obscene names. He continually frequented the senate as often as it sat, and never refused an audience even to the meanest of the people. His success in foreign affairs was equal to his internal policy. When the barbarous nations abroad had certain intelligence that he was emperor, they immediately laid down their arms, well knowing the opposition they were to expect from so experienced a commander. His great error was avarice; and that, in some measure, served to hasten his ruin.

The prætorian soldiers, whose manners he had attempted to reform, having been long corrupted by the indulgence and profusion of their former monarchs, began to hate him for the parsimony and discipline he had introduced among them. They therefore resolved to dethrone him; and for that purpose declared Maternus, an ancient senator, emperor, and endeavoured to carry him to the camp to proclaim him. Maternus, however, was too just to the merits of Pertinax, and too faithful a subject, to concur in their seditious designs; wherefore escaping out of their hands, he fled, first to the emperor, and then out of the city. They then nominated one Falco, another senator; whom the senate would have ordered for execution, had not Pertinax interposed, who declared that during his reign no senator should suffer death.

370
Is murder-
ed by the
prætorian
soldiers.

The prætorian soldiers then resolved unanimously not to use any secret conspiracies, or private contrivances, but boldly to seize upon the emperor and empire at once. They accordingly, in a tumultuous manner, marched through the streets of Rome, and entered the palace without opposition. Such was the terror at their approach, that the greatest part of the emperor's attendants forsook him; while those who remained earnest-

ly intreated him to fly to the body of the people, and interest them in his defence. However, he rejected their advice; declaring, that it was unworthy his imperial dignity, and all his past actions, to save himself by flight. Having thus resolved to face the rebels, he had some hopes that his presence alone would terrify and confound them. But what could his former virtues, or the dignity of command, avail against a tumultuous rabble, nursed up in vice, and ministers of former tyranny? One Thausius, a Tungrian, struck him with his lance on the breast, crying out, "The soldiers send you this." Pertinax finding all was over, covered his head with his robe, and sunk down, mangled with a multitude of wounds, which he received from various assassins. Eclectus, and some more of his attendants, who attempted to defend him, were also slain: his son and daughter only escaped, who happened to be lodged out of the palace. Thus, after a reign of three months, Pertinax fell a sacrifice to the licentious fury of the prætorian army. From the number of his adventures, he was called the *tennis-ball of Fortune*; and certainly no man ever experienced such a variety of situations with so blameless a character.

The soldiers having committed this outrage, retired with great precipitation; and getting out of the city to the rest of their companions, expeditiously fortified their camp, expecting to be attacked by the citizens. Two days having passed without any attempt of this kind, they became more insolent; and willing to make use of the power of which they found themselves possessed, made proclamation, that they would sell the empire to whoever would purchase it at the highest price. In consequence of this proclamation, so odious and unjust, only two bidders were found; namely, Sulpicianus and Didius Julianus: The former, a consular person, prefect of the city, and son-in-law to the late emperor Pertinax; the latter, a consular person likewise, a great lawyer, and the wealthiest man in the city. He was sitting with some friends at dinner when the proclamation was published; and being charmed with the prospect of unbounded power, immediately rose from table and hastened to the camp. Sulpicianus was got there before him; but as he had rather promises than treasure to bestow, the offers of Didius, who produced immense sums of ready money, prevailed. He was received into the camp by a ladder, and they instantly swore to obey him as emperor. From the camp he was attended by his new electors into the city; the whole body of his guards, which consisted of 10,000 men, ranged around him in such order as if they had prepared for battle, and not for a peaceful ceremony. The citizens, however, refused to confirm his election; but rather cursed him as he passed. Upon being conducted to the senate-house, he addressed the few senators that were present in a very laconic speech: "Fathers, you want an emperor; and I am the fittest person you can choose." But even this, short as it seems, was unnecessary, since the senate had it not in their power to refuse their approbation. His speech being backed by the army, to whom he had given about a million of our money, succeeded. The choice of the soldiers was confirmed by the senate, and Didius was acknowledged emperor, now in the 57th year of his age.

371
The emp-
exposed
sale, and
bought by
Didius Ju-
lianus.

It should seem by this weak monarch's conduct when seated

Rome. seated on the throne, that he thought the government of an empire rather a pleasure than a toil. Instead of attempting to gain the hearts of his subjects, he gave himself up to ease and inactivity, utterly regardless of the duties of his station. He was mild and gentle indeed; neither injuring any nor expecting to be injured. But that avarice, by which he became opulent, still followed him in his exaltation; so that the very foldiers who elected him, soon began to detest him for those qualities, so very opposite to a military character. The people also, against whose consent he was chosen, were no less inimical. Whenever he issued from his palace, they openly poured forth their imprecations against him; crying out, that he was a thief, and had stolen the empire. Didius, however, in the true spirit of a trader, patiently bore it all; sometimes beckoning them with smiles to approach him, and testifying his regard by every kind of submission.

372
Pescennius
Niger and
Septimius
Severus as-
sume the
empire.

While Didius was thus contemptuously treated at home, two valiant generals, in different parts of the empire, disclaimed his authority, and boldly resolved to attempt the throne for themselves. These were, Pescennius Niger, governor of Syria; and Septimius Severus, commander of the German legions. Niger was beloved by the people for his clemency and valour; and the report of his proposing Pertinax for his model, and resolving to revenge his death, gained him universal esteem among the people. Being thus apprised of their inclinations, he easily induced his army in Syria to proclaim him emperor; and his title was, shortly after, acknowledged by all the kings and potentates in Asia, who sent their ambassadors to him as their lawful prince. The pleasure of being thus treated as a monarch, in some measure retarded his endeavours to secure his title. Entirely satisfied with the homage of those about him, he neglected the opportunities of suppressing his rivals; and gave himself up to luxury and feasting at Antioch. The conduct of Severus, an African by birth, was very different. Being proclaimed by his army, he began by promising to revenge the death of Pertinax, and took upon him his name. He next secured the fidelity of all the strong places in his province; and then resolved, with the utmost expedition, to march with his whole force directly to Rome.

373
Julianus
deposed
and put to
death.

In the mean time, Didius, who disregarded the attempts of Niger, was greatly alarmed at those of Severus. He first, with many solicitations, procured the senate to proclaim him a traitor. He then applied himself to make the necessary provisions to oppose him, in which he found nothing but disappointment. The cohorts that elected him were enervated by vice and luxury; the people detested his cause; and the cities of Italy had long been disused to the arts of war. Some advised him to march forward, and meet Severus as he was crossing the Alps; others were for sending the generals upon that expedition. The unfortunate Didius, unequal to the task of empire, and quite confounded with the multiplicity of counsels, could take no other resolution but that of awaiting his rival's coming at Rome. Accordingly, soon after being informed of his approach, he obtained the consent of the senate to send his ambassadors, offering to make him a partner of the empire. But Severus rejected this offer, conscious of his own strength, and of the weakness of the proposer. The senate soon appeared of the same sentiments; and

perceiving the timidity and weakness of their present master, began to abandon him, alleging, that he who could not defend the empire was not worthy to govern it. Didius vainly endeavoured to reduce them to their duty, first by intreaties, and then by threats; but these only served to hasten his destruction. The senate being called together, as was formerly practised in the times of the commonwealth by the consuls, they unanimously decreed, That Didius should be deprived of the empire, and that Severus should be proclaimed in his stead. They then commanded Didius to be slain; and sent messengers for this purpose to the palace, where they found him disarmed, and weeping among a few friends that still adhered to his interest. When the executioners began to prepare for their fatal errand, he expostulated with them, demanding what crime he had committed? He could not be persuaded to think, that paying his money, and receiving an empire in exchange, deserved so severe a punishment. The executioners, however, were neither able nor willing to enter into the merits of the cause; they presently led him into the secret baths of the palace, and obliging him to stretch his neck forwards, after the manner of condemned criminals, struck off his head, and placed it up in those courts where he had formerly pleaded with great success.

Romer.

The senate having thus dispatched Didius, sent am-
374
bassadors to Severus, yielding him obedience, granting
Severus de-
clared em-
peror.
him the ensigns and the usual titles of empire, and in-
forming him of the death of Didius. Severus, who
was now about 47 years of age, received them with all
proper respect; and entertaining them honourably con-
tinued his march towards Rome. As he came near
the city, his first exertion of power was, to have all the
praetorian soldiers who had lately sold the empire come
forth unarmed to meet him. These, though sensible
of their danger, had no other resource left but compli-
ance; and accordingly came forward with branches of
laurel, as if to welcome his approach. Severus, how-
ever, soon showed how little capable their present sub-
mission was to atone for their past offences: after up-
braiding them, in a short speech, with all their crimes,
he commanded them to be instantly stripped of their
military habits, deprived of the name and honour of
soldiers, and banished 100 miles from Rome. He then
entered the city in a military manner, took possession
of the palace, and promised the senate to conduct him-
self with clemency and justice. However, though he
united great vigour with the most refined policy, yet
his African cunning was considered as a particular de-
fect in him. He is celebrated for his wit, learning,
and prudence; but equally blamed for infidelity and
cruelty. In short, he seemed alike disposed to the
performance of the greatest acts of virtue and the most
bloody severities. He began his command, by seizing
all the children of such as had employments or author-
ity in the east, and detained them as pledges for their
fathers loyalty. He next supplied the city with corn;
and then with all possible expedition marched against
Niger, who was still considered and honoured as em-
peror of the east.

One of the chief obstacles to his march was, the
374
Niger de-
leaving behind him Clodius Albinus, commander of the
seated and
legions in Britain, whom he by all means wished to se-
killed.
cure in his interests. For this end, he endeavoured to
prevail
8.

Rome.

prevail upon him, by giving him hopes of succeeding to the empire; insinuating, that he himself was declining, and his children were as yet but infants. To deceive him still farther, he wrote in the same style to the senate, gave him the title of *Cæsar*, and ordered money to be coined with his image. These artifices serving to lull Albinus into false security, Severus marched against Niger with all his forces. After some undecisive conflicts, the last great battle that was fought between these extraordinary men was upon the plains of Issus, on the very spot where Alexander had formerly conquered Darius. Besides the two great armies drawn up on the plain, the neighbouring mountains were covered with infinite numbers of people, who were merely led by curiosity to become spectators of an engagement that was to determine the empire of the world. Severus was conqueror; and Niger's head being struck off by some soldiers of the conquering army, was insultingly carried through the camp on the point of a lance.

This victory secured Severus in the possession of the throne. However, the Parthians, Persians, and some other neighbouring nations, took up arms, under a pretence of vindicating Niger's cause. The emperor marched against them in person, had many engagements with them, and obtained such signal victories over them, as enlarged the empire, and established peace in the east.

375
Albinus
defeated
and de-
stroyed.

Niger being no more, Severus now turned his views against Albinus, whom he resolved by every means to destroy. For this purpose he sent assassins into Britain, under a pretence of bringing him letters, but in reality to dispatch him. Albinus being apprised of their designs, prevented their attempt by recurring to open force and proclaiming himself emperor. Nor was he without a powerful army to support his pretensions; of which Severus being sensible, bent his whole force to oppose him. From the east he continued his course across the straits of Byzantium, into the most western parts of Europe, without intermission. Albinus being informed of his approach, went over to meet him with his forces into Gaul; so that the campaign on both sides was carried on with great vigour. Fortune seemed for a while variable; but at last a decisive engagement came on, which was one of the most desperate recorded in the Roman history. It lasted from morning till night, without any seeming advantage on either side; at length the troops of Severus began to fly, and he himself happening to fall from his horse, the army of Albinus cried out, Victory. But the engagement was soon renewed with vigour by Lætus, one of Severus's commanders, who came up with a body of reserve, designing to destroy both parties and make himself emperor. This attempt, though designed against both, turned out entirely to the advantage of Severus. He therefore again charged with such fury and exactness, that he soon plucked the victory from those who but a short time before seemed conquerors; and pursuing them into the city of Lyons, took Albinus prisoner, and cut off his head; treating his dead body with insults that could only flow from a mean and revengeful temper. All the senators who were slain in battle he ordered to be quartered, and such as were taken alive were immediately executed.

Having thus secured himself in possession of the empire, upon his return to Rome he loaded his soldiers with

Rome. rewards and honours; giving them such privileges as strengthened his own power, while they destroyed that of the state. For the soldiers, who had hitherto showed the strongest inclination to an abuse of power, were now made arbiters of the fate of emperors; and we shall henceforward behold them setting them up, and de-throning them, at pleasure.

Being thus secure of his army, he resolved to give way to his natural turn for conquest, and to oppose his arms against the Parthians, who were then invading the frontiers of the empire. Having therefore previously given the government of domestic policy to one Plautianus, a particular favourite of his, to whose daughter he married his son Caracalla, he set out for the east, and prosecuted the war with his usual expedition and success. He forced submission from the king of Armenia, destroyed several cities in Arabia Felix, landed on the Parthian coasts, took and plundered the famous city Ctesiphon, marched back through Palestine and Egypt, and at length returned to Rome in triumph.

During this interval, Plautianus, who was left to direct the affairs of Rome, began to think of aspiring to the empire himself. Upon the emperor's return, he employed a tribune of the prætorian cohorts, of which he was the commander, to assassinate him, as likewise his son Caracalla. The tribune seemed cheerfully to undertake this dangerous office; but instead of going through with it, informed Severus of his favourite's treachery. He at first received it as an improbable story, and as the artifice of some one who envied his favourite's fortune. However, he was at last persuaded to permit the tribune to conduct Plautianus to the emperor's apartments. With this intent, the tribune went and amused him with a pretended account of his killing the emperor and his son, desiring him, if he thought it fit to see them dead, to come with him to the palace. As Plautianus ardently desired their deaths, he readily gave credit to this relation; and following the tribune, he was conducted at midnight into the innermost recesses of the palace. But what must have been his disappointment, when, instead of finding the emperor lying dead, as he expected, he beheld the room lighted up with torches, and Severus, surrounded by his friends, prepared in array to receive him. Being asked by the emperor, with a stern countenance, what had brought him there at that unreasonable time? he was at first utterly confounded; wherefore, not knowing what excuse to make, he ingenuously confessed the whole, intreating forgiveness for what he had intended. The emperor seemed in the beginning inclined to pardon; but Caracalla his son, who from the earliest age showed a disposition to cruelty, spurned him away in the midst of his supplications, and with his sword ran him through the body.

Severus having escaped this danger, spent a considerable time in visiting some cities in Italy, permitting none of his officers to sell places of trust or dignity, and distributing justice with the strictest impartiality. He took such an exact order in managing his exchequer, that, notwithstanding his great expences, he left more money behind him than any of his predecessors. His armies also were kept upon the most respectable footing; so that he feared no invasion. Being equally attentive to the preservation of all parts of the empire, he resolved to make his last expedition into Britain, where

Rome. where the Romans were in danger of being destroyed, or compelled to fly the province. Wherefore, after appointing his two sons Caracalla and Geta joint successors in the empire, and taking them with him, he landed in Britain, to the great terror of such as had drawn down his resentment. Upon his progress into the country, he left his son Geta in the southern part of the province, which had continued in obedience, and marched with his son Caracalla against the Caledonians. In this expedition, his army suffered prodigious hardships in pursuing the enemy; they were obliged to hew their way through intricate forests, to drain extensive marshes, and form bridges over rapid rivers; so that he lost 50,000 men by fatigue and sickness. However, he supported all these inconveniences with the greatest bravery; and is said to have prosecuted his successes with such vigour, that he compelled the enemy to sue for peace; which they obtained, not without the surrender of a considerable part of their country. We must here observe, however, that the Picts and Caledonians are so often confounded together by historians, that many mistakes have thence arisen concerning the progress and conquests of the Romans in the north of Britain. But from the boundary formed by the famous wall of Severus (see *SEVERUS'S WALL*), we must conclude, that no part of Caledonia, properly so called, had been either on this or any other occasion ceded to him; and there is reason to believe, that he rather received checks from the people of that territory, than was ever able to make any considerable impression upon them. Be this, however, as it may, after having made peace, and built his wall, he retired to York; where, partly through age and fatigue, and partly through grief at the irreclaimable life of Caracalla, he found himself daily declining, having already lost the use of his feet. To add to the distress of his situation, he was informed that the soldiers had revolted, and declared his son emperor. In this exigence, he seemed once more to recall his natural vigour; he got himself immediately put into his litter, and commanded the new emperor, with the tribunes and centurions, to be brought before him. Though all were willing to court the favour of the young emperor, such was the authority of Severus, that none dared to disobey. They appeared before him confounded and trembling, and implored pardon upon their knees. Upon which, putting his hand to his head, he cried out, "Know, that it is the head that governs, and not the feet." However, soon perceiving his disorder to increase, and knowing that he could not outlive it, he called for poison; which being refused him, he loaded his stomach with food; which not being able to digest, it soon brought him to his end, in the 56th year of his age, after an active though cruel reign of about 18 years.

Caracalla and Geta being acknowledged as emperors by the army, began to show a mutual hatred to each other even before their arrival at Rome. Their only agreement was, in resolving to deify Severus their father; but soon after, each sought to attach the senate and army to his own particular interest. They were of very opposite dispositions: Caracalla was fierce and cruel to an extreme degree; Geta was mild and merciful; so that the city soon found the dangerous effects of being governed by two princes of equal power and contrary inclinations.

But this opposition was of no long continuance; for Caracalla being resolved to govern alone, furiously entered Geta's apartment, and, followed by ruffians, slew him in his mother's arms. Having committed this detestable murder, he issued with great haste from the palace, crying out, That his brother would have slain him; and that he was obliged, in self-defence, to retaliate the intended injury. He then took refuge among the prætorian cohorts, and in a pathetic tone began to implore their assistance, still making the same excuse for his conduct. To this he added a much more prevailing argument, promising to bestow upon them the largesses usually given upon the election of new emperors, and distributing among them almost all the treasures which had been amassed by his father. By such persuasives the soldiers did not hesitate to proclaim him sole emperor, and to stigmatize the memory of his brother Geta as a traitor and an enemy to the commonwealth. The senators were soon after induced, either through favour or fear, to approve what had been done by the army: Caracalla wept for the death of his brother whom he had slain; and, to carry his hypocrisy to the utmost extreme, ordered him to be adored as a god.

Being now emperor, he went on to mark his course with blood. Whatever was done by Domitian or Nero fell short of this monster's barbarities. Lætus, who first advised him to murder his brother, was the first who fell a sacrifice to his jealousy. His own wife Plautina followed. Papinian, the renowned civilian, was beheaded for refusing to write in vindication of his cruelty; answering the emperor's request, by observing, That it was much easier to commit a parricide than to defend it. He commanded all governors to be slain that his brother had appointed; and destroyed not less than 2000 persons who had adhered to his party. Whole nights were spent in the execution of his bloody decrees; and the dead bodies of people of all ranks were carried out of the city in carts, where they were burnt in heaps, without any of the ceremonies of a funeral. Upon a certain occasion, he ordered his soldiers to set upon a crowded audience in the theatre, only for discountenancing a charioteer whom he happened to favour. Perceiving himself hated by the people, he publicly said, that he could insure his own safety though not their love; so that he neither valued their reproaches nor feared their hatred.

This safety which he so much built upon was placed in the protection of his soldiers. He had exhausted the treasury, drained the provinces, and committed a thousand acts of rapacity, merely to keep them steadfast in his interests; and being disposed to trust himself with them particularly, he resolved to lead them upon a visit through all the provinces of the empire. He first went into Germany; where, to oblige the natives, he dressed himself in the habit of their country. From thence he travelled into Macedonia, where he pretended to be a great admirer of Alexander the Great; and among other extravagancies caused a statue of that monarch to be made with two faces; one of which resembled Alexander and the other himself. He was so corrupted by flattery, that he called himself *Alexander*; walked as he was told that monarch had walked; and, like him, bent his head to one shoulder. Shortly after, arriving at Lesser Asia and the ruins of Troy, as he

Rome.

379
Geta murdered by Caracalla.380
Who proves a most bloody tyrant.381
His extravagant folly, cruelty, and treachery.

Rome. was viewing the tomb of Achilles, he took it into his head to resemble that hero; and one of his freedmen happening to die at that time, he used the same ceremonies that were performed at the tomb of Patroclus. Passing thence into Egypt, he massacred in the most terrible manner the inhabitants of Alexandria, on account of the satires they composed on him, as is related under the article ALEXANDRIA.

Going from thence into Syria, he invited Artabanus king of Parthia to a conference; desiring his daughter in marriage, and promising him the most honourable protection. In consequence of this, that king met him on a spacious plain, unarmed, and only attended with a vast concourse of his nobles. This was what Caracalla desired. Regardless of his promise, or the law of nations, he instantly surrounded him with armed troops, let in wild beasts among his attendants, and made a most terrible slaughter among them; Artabanus himself escaping with the utmost difficulty. For this vile treachery he obtained from the senate the surname of *Parthicus*.

382
Marries his
father's
wife. Upon his return towards Rome, it would seem as if his vices were inexhaustible; for having been guilty of parricide, he now resolved to marry the mother of Geta whom he had slain. It happened that one day seeing her drop her veil, which disclosed her naked bosom, which was extremely beautiful, he told her, that he would possess those charms he beheld, if it were lawful. To this unnatural request she hesitated not to answer, that he might enjoy all things who possessed all. Whereupon, setting aside all duty and respect for his deceased father, he celebrated his nuptials with her in public, totally disregarding the censures and the sarcasms of mankind.

However, though he disregarded shame, he was not insensible to fear. He was ever uneasy in the consciousness of being universally hated; and was continually consulting astrologers concerning what death he should die. Among others, he sent one of his confidants, named *Maternianus*, with orders to consult all the astrologers in the city concerning his end. *Maternianus* considered this as a proper time to get rid of Macrinus, the emperor's principal commander in Mesopotamia; a man who was daily supplanting him in his master's favour. He therefore informed him by letter, as if from the astrologers, that Macrinus had a design against his life; and they consequently advised him to put the conspirator to death. This letter was sent sealed, and made up, amongst many others, to be conveyed with the greater secrecy, and delivered to the emperor as he was preparing for a chariot-race. However, as it never was his custom to interrupt his pleasures for his business, he gave the packet to Macrinus to read over, and to inform him of the contents when more at leisure. In perusing these letters, when Macrinus came to that which regarded himself, he was unable to contain his surprise and terror. His first care was, to reserve the letter in question to himself, and to acquaint the emperor only with the substance of the rest. He then set about the most probable means of compassing his death, by which alone he could expect any safety. At length he determined to apply to one *Martialis*, a man of great strength, and a centurion of the guards, who hated the emperor from various motives; particularly for the death of a brother, whom Caracalla had ordered

to be slain. Him therefore Macrinus exhorted to revenge his brother's death, by killing the tyrant, which he might easily effect, as being always so near his person. *Martialis* readily undertook the dangerous task; being willing to meet death himself, so he might obtain his desire of seeing the tyrant expire before him. Accordingly, as the emperor was riding out one day near a little city called *Carre*, he happened to withdraw himself privately, upon a natural occasion, with only one page to hold his horse. This was the opportunity *Martialis* had so long and ardently desired; wherefore running to him as if he had been called, he stabbed the emperor in the back, so that he died immediately. *Martialis* unconcernedly returned to his troop; but retiring by insensible degrees, he endeavoured to secure himself by flight. But his companions soon missing him, and the page giving information of what had been done, he was pursued by the German horse and cut in pieces.

During the reign of this execrable tyrant, which continued six years, the empire was every day declining; the soldiers were entirely masters of every election; and as there were various armies in different parts, so there were as many interests all opposite to each other. Caracalla, by satisfying their most unreasonable appetites, destroyed all discipline among them, and all subordination in the state.

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Marinus
succeeds. The soldiers, now without an emperor, after a suspense of two days, fixed upon Macrinus, who took all possible methods to conceal his being privy to Caracalla's murder. The senate confirmed their choice shortly after; and likewise that of his son *Diadumenus*, whom he took as a partner in the empire. Macrinus was 53 years old when he entered upon the government of the empire. He was of obscure parentage; some say by birth a Moor, who by the mere rotation of office, being first made præfect of the prætorian bands, was now, by treason and accident, called to fill the throne. We are told but little of this emperor, except his engaging in a bloody though undecided battle with Artabanus king of Parthia, who came to take vengeance for the injury he had sustained in the late reign; however, this monarch finding his real enemy dead, was content to make peace, and returned into Parthia. Something is also said of the severity of this emperor's discipline; for to such a pitch of licentiousness was the Roman army now arrived, that the most severe punishments were unable to restrain the soldiers; and yet the most gentle inflictions were looked upon as severity. It was this rigorous discipline, together with the artifices of Mæsa, grandmother to *Heliogabalus* the natural son of Caracalla, that caused the emperor's ruin. *Heliogabalus* was priest of a temple dedicated to the Sun, in Emesa, a city of Phœnicia; and though but 14 years old was greatly loved by the army for the beauty of his person, and the memory of his father, whom they still considered as their greatest benefactor. This was soon perceived by the grandmother; who being very rich in gold and jewels, gave liberal presents among them, while they frequently repaired to the temple, both from the garrison in the city and the camp of Macrinus. This intercourse growing every day more frequent, the soldiers, being disgusted with the severities of their present emperor, began to think of placing *Heliogabalus* in his stead. Accordingly, sending for him to

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Heliogabalus re-volts against him.

Rome. to their camp, he was immediately proclaimed; and such were the hopes of his virtues, that all men began to affect his interests.

Macrinus, who at this time was pursuing his pleasures at Antioch, gave but little attention to the first report; only sending his lieutenant Julian, with some legions, to quell the insurrection. However, these, like the rest, soon declared for Heliogabalus, and slew their general. It was then that Macrinus found he had treated the rebellion too slightly; he therefore resolved, with his son, to march directly against the seditious legions, and force them to their duty. Both parties met on the confines of Syria: the battle was for some time furious and obstinate; but at last Macrinus was overthrown, and obliged to seek safety by flight. His principal aim was to get to Rome, where he knew his presence was desired; wherefore he travelled through the provinces of Asia Minor with the utmost expedition and privacy, but unfortunately fell sick at the city of Chalcedon. There those who were sent in pursuit, overtook and put him to death, together with his son Diadumenus, after a short reign of one year and two months.

The senate and citizens of Rome being obliged to submit to the appointment of the army as usual, Heliogabalus ascended the throne at the age of 14. One at so early an age, invested with unlimited power, and surrounded with flatterers, could be expected to act only as they thought proper to direct. This young emperor was entirely led by them; and being sensible that it was in his power to indulge all his appetites, he studied only their gratification. As he is described by historians, he appears a monster of sensuality. His short life therefore is but a tissue of effeminacy, lust, and extravagance. He married, in the small space of four years, six wives, and divorced them all. He built a temple to the sun; and willing that his god should have a wife as well as himself, he married him to Pallas, and shortly after to the moon. His palace was a place of rendezvous for all the prostitutes of Rome, whom he frequently met naked, calling them *his fellow soldiers, and companions in the field*. He was so fond of the sex, that he carried his mother with him to the senate-house, and demanded that she should always be present when matters of importance were debated. He even went so far as to build a senate-house for women, with suitable orders, habits, and distinctions, of which his mother was made president. They met several times; all their debates turning upon the fashions of the day, and the different formalities to be used in giving and receiving visits. To these follies, he added great cruelty and boundless prodigality; so that he was heard to say, that such dishes as were cheaply obtained were scarce worth eating. His suppers therefore generally cost 6000 crowns, and often 60,000. He was always dressed in cloth of gold and purple, enriched with precious stones, and yet never wore the same habit twice. His palace, his chambers, and his beds, were all furnished of the richest stuffs, covered with gold and jewels. Whenever he took horse, all the way between his apartment and the place of mounting was covered with gold and silver dust strewn at his approach.

These excesses were soon perceived by his grandmother Mæsa, whose intrigues had first raised him to the throne; so that she thought to lessen his power by di-

viding it. For this purpose, under a pretence of freeing him from the cares of public business, she persuaded him to adopt his cousin-german, Alexander, as his successor; and likewise to make him his partner in the consulship. Heliogabalus, having thus raised his cousin, had scarce given him his power, when he wished again to take it away; but the virtues of this young prince had so greatly endeared the people and the army to him, that the attempt had like to have been fatal to the tyrant himself. The prætorian soldiers mutinying, attempted to kill him as he was walking in his gardens; but he escaped, by hiding himself from their fury. However, upon returning to their camp, they continued the sedition; requiring that the emperor should remove such persons from about him as oppressed the subject, and contributed to contaminate him. They required also the being permitted to guard the young prince themselves, and that none of the emperor's favourites or familiars should ever be permitted to converse with him. Heliogabalus was reluctantly obliged to comply; and conscious of the danger he was in, made preparations for death, when it should arrive, in a manner truly whimsical and peculiar. He built a lofty tower with steps of gold and pearl, from whence to throw himself headlong in case of necessity. He also prepared cords of purple silk and gold to strangle himself with; he provided golden swords and daggers to stab himself with; and poison to be kept in boxes of emerald, in order to obtain what death he chose best. Thus fearing all things, but particularly suspicious of the designs of the senate, he banished them all out of the city: he next attempted to poison Alexander, and spread a report of his death; but perceiving the soldiers begin to mutiny, he immediately took him in his chariot to the camp, where he experienced a fresh mortification, by finding all the acclamations of the army directed only to his successor. This not a little raised his indignation, and excited his desire of revenge. He returned towards the city, threatening the most severe punishments against those who had displeased him, and meditating fresh cruelties. However, the soldiers were unwilling to give him time to put his designs in execution: they followed him directly to his palace, pursued him from apartment to apartment, and at last found him concealed in a privy; a situation very different from that in which he expected to die. Having dragged him from thence through the streets, with the most bitter invectives, and having dispatched him, they attempted once more to squeeze his pampered body into a privy; but not easily effecting this, they threw it into the Tiber, with heavy weights, that none might afterwards find or give it burial. This was the miserable and ignominious death of Heliogabalus, in the 18th year of his age, after a detestable reign of four years. His mother also was slain at the same time by the soldiers; as were also many of the opprobrious associates of his criminal pleasures.

Alexander being, without opposition, declared emperor, the senate, in their usual method of adulation, Alexander. were for conferring new titles upon him; but he modestly declined them all, alleging, that titles were only honourable when given to virtue, not to station. This outset was an happy omen of his future virtues; and few princes in history have been more commended by his contemporaries, or indeed more deservedly commenda-

Rome.

tion. To the most rigid justice he added the greatest humanity. He loved the good, and was a severe reprover of the lewd and infamous. His accomplishments were equal to his virtues. He was an excellent mathematician, geometrician, and musician; he was equally skilled in painting and sculpture; and in poetry few of his time could equal him. In short, such were his talents, and such the solidity of his judgment, that though but 16 years of age, he was considered as a wise old man.

The first part of his reign was spent in a reformation of the abuses of his predecessor. He restored the senators to their rank; nothing being undertaken without the most sage advisers, and most mature deliberation. Among the number of his advisers was his mother Mammæa; a woman eminent for her virtues and accomplishments, and who made use of her power as well to secure her son the affections of his subjects, as to procure them the most just administration. He was a rigid punisher of such magistrates as took bribes, saying, That it was not enough to deprive such of their places; for their trusts being great, their lives, in most cases, ought to pay for a breach of them. On the contrary, he thought he could never sufficiently reward such as had been remarkable for their justice and integrity, keeping a register of their names, and sometimes asking such of them as appeared modest and unwilling to approach him, why they were so backward in demanding their reward, and why they suffered him to be in their debt? His clemency extended even to the Christians, who had been punished in the former reigns with unrelenting barbarity. Upon a contest between them and a company of cooks and vintners, about a piece of public ground, which the one claimed as a place for public worship, and the other for exercising their respective trades, he decided the point by his rescript, in these words: "It is better that God be worshipped there in any manner, than that the place should be put to uses of drunkenness and debauchery."

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Restores
the affairs
of the em-
pire,

His abilities in war were not inferior to his assiduity in peace. The empire, which from the remissness and debauchery of the preceding reigns now began to be attacked on every side, wanted a person of vigour and conduct to defend it. Alexander faced the enemy wherever the invasion was most formidable, and for a short time deferred its ruin. His first expedition, in the tenth year of his reign, was against the Parthians and Persians, whom he opposed with a powerful army.—The Persians were routed in a decisive engagement with great slaughter; the cities of Ctesiphon and Babylon were once more taken, and the Roman empire was restored to its former limits. Upon his return to Antioch, his mother Mammæa sent for the famous Origen, to be instructed by him in the principles of Christianity; and after discoursing with him for some time upon the subject, dismissed him, with a proper safeguard, to his native city of Alexandria. About the same time that Alexander was victorious in the East, *Furius Celsus*, his general, obtained a signal victory over the Mauritanians in Africa. *Varius Macrinus* was successful in Germany, and *Junius Palmatus* returned with conquest from Armenia. However, the number of these victories only hastened the decline of the empire, which was wasted by the exertion of its own

strength, and was now becoming little more than a splendid ruin.

About the 13th year of his reign, the Upper Germans, and other northern nations, began to pour down immense swarms of people upon the more southern parts of the empire. They passed the Rhine and the Danube with such fury, that all Italy was thrown into the most extreme consternation. The emperor, ever ready to expose himself for the safety of his people, made what levies he could, and went in person to stem the torrent; which he speedily effected. It was in the course of his successes against the enemy, that he was cut off by a mutiny among his soldiers. The legions encamped about Moguntia, having been abominably corrupted during the reign of Heliogabalus, and trained up in all kinds of rapine and disobedience, required the most strict command. Alexander could neither endure their tumultuary obedience, nor they his regular discipline. His own faults, and those of his mother Mammæa, were objected against him. They openly exclaimed, That they were governed by an aversive woman, and a mean-spirited boy; and resolved, upon electing an emperor capable of ruling alone. In this general revolt, *Maximinus*, an old and experienced commander, held frequent conferences with the soldiers, and enflamed the sedition. At length, being determined to dispatch their present emperor, they sent an executioner into his tent; who immediately struck off his head, and, shortly after, that of his mother. He died in the 29th year of his age, after a prosperous reign of thirteen years and nine days.

The tumults occasioned by the death of Alexander being appeased, *Maximinus*, who had been the chief promoter of the sedition, was chosen emperor. This extraordinary man, whose character deserves particular attention, was born of very obscure parentage, being the son of a poor herdsman of Thrace. In the beginning he followed his father's profession, and only exercised his personal courage against the robbers who infested the part of the country in which he lived. Soon after, his ambition increasing, he left his poor employment, and enlisted in the Roman army; where he soon became remarkable for his great strength, discipline, and courage. This gigantic man was no less than eight feet and a half high; he had a body and strength corresponding to his size, being not less remarkable for the magnitude than the symmetry of his person. His wife's bracelet usually served him for a thumb-ring; and his strength was so great, that he was able to draw a carriage which two oxen could not move. He could strike out an horse's teeth with a blow of his fist, and break its thigh with a kick. His diet was as extraordinary as the rest of his endowments; he generally eat 40 pounds weight of flesh every day, and drank six gallons of wine, without committing any debauch in either. With a frame so athletic, he was possessed of a mind undaunted in danger, and neither fearing nor regarding any man. The first time he was made known to the emperor *Severus*, was upon his celebrating games on the birth-day of his son *Geta*. *Maximinus* was then a rude countryman, and requested the emperor to be permitted to contend for the prizes which were distributed to the best runners, wrestlers, and boxers, of the army. *Severus*, unwilling to infringe the military discipline, would

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murder

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Succeeded
by *Maxi-*
minus, a
man of
gigantic
stature
and
extraor-
dinary
strength.

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would not permit him at first to combat, except with slaves, against whom his strength appeared astonishing. He overcame 16 in running, one after the other: he then kept up with the emperor on horseback; and having fatigued him in the course, he was opposed to seven of the most active soldiers, and overcame them with the greatest ease. From that time he was particularly noticed, and taken into the emperor's body-guards, in which his assiduity and prompt obedience were particularly remarkable. In the reign of Caracalla, he was made a centurion, and distinguished himself in this station by his strict attention to the morals and discipline of those he commanded. When made a tribune, he still retained the hard simplicity of his life; eat as the meanest centinel; spent whole days in exercising his troops; and would now and then himself wrestle with eight or ten of the strongest men in the army, whom he threw with scarce any effort. Being thus become one of the most remarkable men in the empire, both for courage, discipline, and personal activity, he gave, shortly after, a very high instance of his unshaken fidelity: for when Macrinus was made emperor, he refused to serve under a prince that had betrayed his sovereign; and retired to Thrace, his native country, where he followed commerce, and purchased some lands, content with privacy rather than a guilty dependence. Upon the accession of Heliogabalus to the throne, this bold veteran once more returned to the army; but was, in the very beginning, disgusted at the base effeminacy of the emperor; who, hearing amazing instances of his strength, asked him, if he were equally capable in combats of another nature? This lewd demand was so little suitable to the temper of Maximinus, that he instantly left the court. Upon the death of Heliogabalus, he again returned to Rome, and was received with great kindness by Alexander, who particularly recommended him to the senate, and made him commander of the fourth legion, which consisted of new-raised soldiers. Maximinus gladly accepted of this charge, and performed his duty with great exactness and success, setting an example of virtue and discipline to all the commanders of the army. Nor was his valour less apparent against the Germans, whither he was sent with his legion; so that he was unanimously considered as the boldest, bravest, most valiant, and most virtuous soldier in the whole empire. He soon, however, forfeited all these justly merited titles, when he was raised to the throne; and, from being the most loved commander in the army, he became the most cruel tyrant upon earth. Yet in fact, his former virtues were all of the severe and rigid kind, which, without any education, might very easily degenerate into tyranny; so that he might have mistaken his succeeding cruelty for discipline, and his severity for justice. However this be, Maximinus is considered as one of the greatest monsters of cruelty that ever disgraced power; and, fearful of nothing himself, he seemed to sport with the terrors of all mankind.

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becomes a
cruel ty-
rant.

He began his reign, by endeavouring to force obedience from every rank of people, and by vindicating his authority by violence. The senate and people of Rome were the first that incurred his resentment. They utterly refusing to confirm the election of the army, he was the first emperor who reigned without their concurrence or approbation. However, he seem-

ed regardless of their opposition, proceeding to secure his election by putting all such to death as had been raised by his predecessor. The Christians also, having found favour in the former reign, felt the weight of his resentment; and were persecuted in several parts of the empire, particularly in those where he himself resided. His cruelty likewise extended to the rich, whose lives and estates became a frequent sacrifice to avarice and suspicion. But what appears still a more extraordinary instance of his cruelty, being ashamed of the meanness of his extraction, he commanded all such as were best acquainted with him and his parentage to be slain, although there were some among the number that had relieved him in his low condition.

However, his cruelties did not retard his military ³⁹⁴ His success operations, which were carried on with a spirit be- in war. coming a better monarch. He overthrew the Germans in several battles, wasted all their country with fire and sword for 400 miles together, and set a resolution of subduing all the northern nations as far as the ocean. In these expeditions, in order to attach the soldiers more firmly to him, he increased their pay; and in every duty of the camp, he himself took as much pains as the meanest centinel in his army, showing incredible courage and assiduity. In every engagement, where the conflict was hottest, Maximinus was always seen fighting there in person, and destroying all before him; for, being bred a barbarian, he considered it as his duty to combat as a common soldier, while he commanded as a general.

In the mean time, his cruelties had so alienated the ³⁹⁵ Conspira- minds of his subjects, that several conspiracies were cles formed against him. secretly aimed against him. Magnus, a consular person, and some others, had plotted to break down a wooden bridge, as soon as the emperor had passed it, and thus to abandon him to the enemy. But this being discovered, gave Maximinus an opportunity of indulging his natural severity, upon this pretext alone causing above 4000 to be slain. Shortly after, some of Alexander's old soldiers withdrawing themselves from the camp, proclaimed one Quarcianus as emperor, who had been lately disgusted at Maximinus for being dismissed from employment. The soldiers, in fact, constrained him to accept of the dangerous superiority to which he was exposed: and shortly after, in the spirit of the times, the person who had been the promoter of his advancement, murdered him in his bed, and carried his head to Maximinus; who received him kindly at first, but soon put him to a cruel death, for his complicated guilt of treason and treachery.

These partial insurrections were soon after followed by a spirit of general discontent throughout all the empire. The provinces of Africa were the first that showed their detestation of the tyrant, whose extortions and cruelties among them were become insupportable. They first slew his procurator; and afterwards considering how dangerous a crime they had committed, they resolved to throw off all expectations of pardon, and create a new emperor. Gordian was then, ³⁹⁶ Gordian proclamed consul of Africa, a person of great fame for his virtues, and highly revered for a blameless life of near 80. emperor. Him, therefore, they determined to elect; and accordingly the soldiers and natives assembling together, tumultuously entered his house, resolved to put their design in execution. Gordian, who at first supposed

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they were come to kill him, being made sensible of their intentions, utterly refused their offer, alleging his extreme age, and Maximinus's power. But all his opposition was vain: they constrained him to accept of the proffered dignity; and he, with his son Gordian, who was 46 years of age, were declared emperors. Being thus raised contrary to his inclination, the old man immediately wrote to the senate, declaring that he had unwillingly accepted of the empire, and would only keep his authority till he had freed it from the tyranny of its present oppressor. The senate very joyfully confirmed his election, adjudging Maximinus as an enemy and traitor to the state. The citizens also showed an equal zeal in the cause: they flew upon such as were the reputed friends of Maximinus, and tore them in pieces; even some who were innocent falling a sacrifice to the multitude's blind rage. So great an alteration being made in the city against the interests of Maximinus, the senate were resolved to drive the opposition to the extreme; and accordingly made all necessary preparations for their security, ordering Maximinus's governors to be displaced, and commanding all the provinces to acknowledge Gordian for emperor. This order was differently received in different parts, as people were affected to one or the other party: in some provinces the governors were slain; in others, the messengers of the senate; so that all parts of the empire felt the consequences of the civil war.

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Rage of
Maximinus
on hearing
the news.

In the mean time, when Maximinus was informed of these charges against him, his rage appeared ungovernable. He roared like a savage beast, and violently struck his head against the wall, showing every instance of ungovernable distraction. At length his fury being somewhat subsided, he called his whole army together; and, in a set speech, exhorted them to revenge his cause, giving them the strongest assurances that they should possess the estates of all such as had offended. The soldiers unanimously promised to be faithful; they received his harangue with their usual acclamations; and, thus encouraged, he led them towards Rome, breathing nothing but slaughter and revenge. However, he found many obstacles to his impetuosity; and, though he desired nothing so much as dispatch, his marches were incommensurable and slow. The tumultuous and disobedient armies of the empire were at present very different from the legions that were led on by Sylla or Cæsar; they were loaded with baggage, and followed by slaves and women, rather resembling an eastern caravan, than a military battalion. To these inconveniences also was added the hatred of the cities through which he passed, the inhabitants all abandoning their houses upon his approach, and securing their provisions in proper hiding-places. However, in this complication of inconveniences and misfortunes, his affairs began to wear a favourable appearance in Africa: for Capelianus, the governor of Numidia, raised a body of troops in his favour, and marched against Gordian, towards Carthage; where he fought the younger Gordian, slew him, and destroyed his army. The father, hearing of the death of his son, together with the loss of the battle, strangled himself in his own girdle. Capelianus pursuing his victory, entered Carthage; where he gave a loose to pillage and slaughter, under a pretence of revenging the cause of Maximinus. The news of

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Gordian
defeated
and killed.

these successes was soon brought to the emperor, who now increased his diligence, and flattered himself with a speedy opportunity of revenge. He led on his large army by hasty journeys into Italy, threatening destruction to all his opposers, and ardently wishing for fresh opportunities of slaughter.

Nothing could exceed the consternation of the senate upon the news of this defeat. They now saw themselves not only deprived of the assistance of Gordian and his son, on whom they greatly relied; but also opposed by two formidable tyrants, each commanding a victorious army, directly marching towards Rome, and meditating nothing but vengeance. In this afflicting exigence, they, with great solemnity, met at the temple of Jupiter, and after the most mature deliberations, chose Papienus and Balbinus emperors conjointly. These were men who had acquired the esteem of the public both in war and peace, having commanded armies, and governed provinces, with great reputation; and being now appointed to oppose Maximinus, they made what levies they could, both in Rome and the country. With these, Papienus marched to stop the progress of the invaders, leaving the city to a fresh and unlooked for calamity. This was occasioned by two of Maximinus's soldiers, who, entering the senate-house, were slain by two senators. This quickly gave offence to the body of the prætorian soldiers, who instantly resolved to take revenge, but were opposed by the citizens; so that nothing was seen throughout Rome, but tumult, slaughter, and cruelty. In this universal confusion, the calamity was increased by the soldiers setting the city on fire, while the wretched inhabitants were combating each other in the midst of the flames.

Nevertheless, Maximinus himself, in whose favour these seditions were promoted, did not seem to be more fortunate. Upon being informed of the new election of emperors, his fury was again renewed, and he passed the Alps, expecting, upon entering Italy, to refresh his fatigued and famished army in that fertile part of the country. But in this he was entirely disappointed; the senate had taken such care to remove all kinds of sustenance to fortified places, that he still found himself reduced to his former necessities, while his army began to murmur for want. To this another disappointment was added shortly after: for approaching the city of Aquileia, which he expected to enter without any difficulty, he was astonished to find it prepared for the most obstinate resistance, and resolved to hold out a regular siege. This city was well fortified and populous, and the inhabitants greatly averse to Maximinus's government; but what added still more to its strength, it was commanded by two excellent generals, Crispinus and Menophilus, who had so well furnished it with men and ammunition, that Maximinus found no small resistance, even in investing the place. His first attempt was, to take the city by storm; but the besieged threw down such quantities of scalding pitch and sulphur upon his soldiers, that they were unable to continue the assault. He then determined upon a blockade; but the inhabitants were so resolute, that even the old men and children were seen combating upon the walls, while the women cut off their hair to furnish the soldiers with bow-strings. Maximinus's rage at this unexpected opposition was

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Papienus
and Balb-
inus pro-
claimed
emperors.

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Aquileia
besieged
Maximi-
nus.

now

now ungovernable: having no enemy to wreck his resentment upon, he turned it against his own commanders. He put many of his generals to death, as if the city had held out through their neglect or incapacity, while famine made great depredations upon the rest of his army. Nothing now appeared on either side to terminate the contest, except the total destruction of either. But a mutiny in Maximinus's own army a while rescued the declining empire from destruction, and saved the lives of thousands. The soldiers being long harassed by famine and fatigue, and hearing of revolts on every side, resolved to terminate their calamities by the tyrant's death. His great strength, and his being always armed, were, at first, the principal motives to deter any from assassinating him; but at length having made his guards accomplices in their design, they set upon him, while he slept at noon in his tent, and slew both him and his son, whom he had made his partner in the empire, without any opposition, after an usurpation of about three years, and in the 65th year of his age.

The tyrant being dead, and his body thrown to the dogs and birds of prey, Pupienus and Balbinus continued for some time emperors without opposition. But the prætorian soldiers, who had long been notorious for mutiny and treason, soon resolved on further change. Nor did the dissensions between the new made emperors themselves a little contribute to their downfall: for though both were remarkable for wisdom and age, yet they could not restrain the mutual jealousy of each other's power. Pupienus claimed the superiority from his great experience; while Balbinus was equally aspiring upon account of his family and fortune.

In this ill-judged contest, the prætorian soldiers, who were enemies to both, set upon them in their palace, at a time their guards were amused with seeing the Capitoline games. Pupienus perceiving their tumultuous approach, sent with the utmost speed for assistance from his colleague; but he, out of a culpable suspicion that something was designed only against himself, refused to send such of the German guards as were next his person. Thus the seditious soldiers found an easy access to both the emperors apartments; and dragging them from the palace towards the camp, slew them both, leaving their dead bodies in the streets, as a dreadful instance of their sedition.

In the midst of this sedition, as the mutineers were proceeding along, they by accident met Gordian, the grandson of him who was slain in Africa, and declared him emperor on the spot. The senate and people had been long reduced to the necessity of suffering their emperors to be nominated by the army; so that all they could do in the present instance was to confirm their choice. This prince was but 16 years old when he began his reign, but his virtues seemed to compensate for his want of experience. His principal aims were, to unite the opposing members of the government, and to reconcile the soldiers and citizens to each other. His learning is said to have been equal to his virtues; and we are assured that he had 62,000 books in his library. His respect for Mithæus, his governor and instructor, was such, that he married his daughter, and profited by his counsels in all the critical circumstances of his reign.

The first four years of this emperor's reign were attended with the utmost prosperity; but in the fifth he was alarmed with accounts from the east, that Sapor, king of Persia, had furiously invaded the confines of the Roman empire, and having taken Antioch, had pillaged Syria and all the adjacent provinces. Besides the Persians, the Goths also invaded the empire on their side, pouring down like an inundation from the north, and attempting to fix their residence in the kingdom of Thrace. To oppose both these invasions, Gordian prepared an army; and having gained some victories over the Goths, whom he obliged to retire, he turned his arms against the Persians, whom he defeated upon several occasions, and forced to return home with disgrace. In gaining these advantages, Mithæus, whom he had made prætorian præfect, had the principal share; but he dying soon after (as it is supposed being poisoned by Philip an Arabian, who was appointed his successor), the fortunes of Gordian seemed to die with him. The army began to be no longer supplied with provisions as usual; murmurs were heard to prevail, and these were artfully fomented by Philip. Things thus proceeding from bad to worse, Philip was at first made his equal in the command of the empire; shortly after, invested with the sole power; and, at length, finding himself capable of perpetrating his long meditated cruelty, Gordian was, by his order, slain, in the 22d year of his age, after a successful reign of near six years.

Philip having thus murdered his benefactor, was so fortunate as to be immediately acknowledged emperor by the army. The senate also, though they seemed at first to oppose his power, confirmed his election, and gave him, as usual, the title of *Augustus*. Philip was about 40 years old when he came to the throne; being the son of an obscure Arabian, who had been captain of a band of robbers. Upon his exaltation, he associated his son, a boy of six years of age, as his partner in the empire; and, in order to secure his power at home, made peace with the Persians, and marched his army towards Rome. On his way, having conceived a desire to visit his native country of Arabia, he built there a city called *Philippopolis*; and from thence returning to Rome, he was received as emperor, and treated with all the marks of submission, though not of joy. To put the people in good humour, he caused the secular games to be celebrated, with a magnificence superior to any of his predecessors, it being just 1000 years after the building of the city. Upon occasion of these games, we are told that both Philip and his son were converted to Christianity. However this be, a murderer and an ungrateful usurper does no great honour to whatever opinion he may happen to embrace. We have little account of the latter part of his reign in the wretched and mutilated histories of the times; we only learn, that the Goths having invaded the empire, Marinus, Philip's lieutenant, who was sent against them, revolted, and caused himself to be declared emperor. This revolt, however, was but of short duration; for the army which had raised him repented of their rashness, deposed him with equal levity, and put him to death. Decius was the person whom Philip appointed to command in the room of the revolting general. The chief merit of Decius with the emperor

was,

Rome.
404
His success
against the
barbarians.

405
Is murder-
ed by Phil-
ip, who
succeeded.

406
The 1000th year
of Rome.

Rome.

was, that when Marinus had rebelled, he averred in the senate, That the traitor's presumption would be very shortly his ruin; which, when it happened accordingly, Philip appointed him to succeed in the command of the rebellious army. Decius, who was a man of great subtlety, being thus entrusted with so much power, upon arriving at the army found that the foldiers were resolved on investing him with the supreme authority. He therefore seemed to suffer their importunities, as if through constraint; and, in the mean time, sent Philip word, that he had unwillingly assumed the title of emperor, the better to secure it for the rightful possessor; adding, that he only looked for a convenient opportunity of giving up his pretensions and title together. Philip knew mankind too well, to rely upon such professions: he therefore got together what forces he could from the several provinces, and led them forward towards the confines of Italy. However, the army was scarce arrived at Verona, when it revolted in favour of Decius, and setting violently upon Philip, a centinel, with one blow, cut off his head, or rather cleaved it asunder, separating the under jaw from the upper. Such was the deserved death of Philip, in the 45th year of his age, after a reign of about five years; Decius being universally acknowledged as his successor, A. D. 248.

407
Philip
murdered,
and is suc-
ceeded by
Decius.

The activity and wisdom of Decius in some measure stopped the hastening decline of the Roman empire. The senate seemed to think so highly of his merits, that they voted him not inferior to Trajan; and indeed he seemed in every instance to consult their dignity in particular, and the welfare of all inferior ranks of people. He permitted them to choose a censor, as was the custom in the flourishing times of Rome; and Valerian, his general, a man of such strict morals, that his life was said to be a continual censorship, was chosen to that dignity.—But no virtues could now prevent the approaching downfall of the state: the obstinate disputes between the Pagans and the Christians within the empire, and the unceasing irruptions of barbarous nations from without, enfeebled it beyond the power of a remedy. To stop these, a persecution of the Christians, who were now grown the most numerous body of the people, was impolitically, not to say unjustly, begun; in which thousands were put to death, and all the arts of cruelty tried in vain to lessen their growing number. This persecution was succeeded by dreadful devastations from the Goths, particularly in Thrace and Moesia, where they had been most successful. These irruptions Decius went to oppose in person; and coming to an engagement with them, slew 30,000 of the barbarians in one battle. However, being resolved to pursue his victory, he was, by the treachery of Gallus his own general, led into a defile, where the king of the Goths had secret information to attack him. In this disadvantageous situation, Decius first saw his son killed with an arrow, and soon after his whole army put to the rout. Wherefore, resolving not to survive his loss, he put spurs to his horse, and instantly plunging into a quagmire, was swallowed up, and his body could never be found after. He died in the 50th year of his age, after a short reign of two years and six months; leaving the character of an excellent prince, and one capable of averting the de-

408
Is over-
come, and
killed by
the Goths.

struction of the empire, if human means could have effected it.

Gallus, who had thus betrayed the Roman army, had address enough to get himself declared emperor by that part of it which survived the defeat; he was 45 years old when he began to reign, and was descended from an honourable family in Rome. He bought a dishonourable peace from the enemies of the state, agreeing to pay a considerable annual tribute to the Goths, whom it was his duty to repress. Having thus purchased a short remission from war, by the disgrace of his country, he returned to Rome, to give a loose to his pleasures, regardless of the wretched situation of the empire.

Nothing can be more deplorable than the state of the Roman provinces at this time. The Goths and other barbarous nations, not satisfied with their late bribes to continue in peace, broke in upon the eastern parts of Europe. On the other side, the Persians and Scythians committed unheard of ravages in Mesopotamia and Syria. The emperor, regardless of every national calamity, was lost in debauch and sensuality at home; and the Pagans were allowed a power of persecuting the Christians through all parts of the state; these calamities were succeeded by a pestilence, that seemed to have in general spread over every part of the earth, and which continued raging for several years in an unheard of manner; and all these by a civil war, which followed shortly after, between Gallus and his general Æmilianus, who having gained a victory over the Goths, was proclaimed emperor by his conquering army. Gallus hearing this, was soon roused from the intoxications of pleasure, and prepared to oppose his dangerous rival. Both armies met in Moesia, and a battle ensued, in which Æmilianus was victorious, and Gallus, with his son, were slain. His death was merited, and his vices were such as to deserve the detestation of posterity. He died in the 47th year of his age, after an unhappy reign of two years and four months, in which the empire suffered inexpressible calamities. Æmilianus, after his victory over Gallus, expected to be acknowledged emperor; but he soon found himself miserably disappointed. The senate refused to acknowledge his claims; and an army that was stationed near the Alps chose Valerian, their own commander, to succeed to the throne. In consequence of this, Æmilianus's soldiers began to consider their general as an obstacle to the universal tranquillity, and slew him in order to avoid the mischiefs of a civil war.

Valerian being thus universally acknowledged as emperor, although arrived at the age of 70, set about reforming the state with a spirit that seemed to mark a good mind and unabated vigour. But reformation was then grown almost impracticable. The disputes between the Pagans and Christians divided the empire as before; and a dreadful persecution of the latter ensued. The northern nations over-ran the Roman dominions in a more formidable manner than ever; and the empire began to be usurped by a multitude of petty leaders, each of whom, neglecting the general state, set up for himself. To add to these calamities, the Persians, under their king Sapor, invaded Syria; and coming into Mesopotamia, took the unfortunate Valerian pri-

409
Succeeded
by Gallus

410
Miserable
state of the
empire.

491
Valerian
taken pri-
soner, and
sueily in-
flicted by
the Per-
sians.

soner, as he was making preparations to oppose them. Nothing can exceed the indignities, as well as the cruelties, which were practised upon this unhappy monarch, thus fallen into the hands of his enemies. Sapor, we are told, always used him as a footstool for mounting his horse; he added the bitterness of ridicule to his insults, and usually observed, That an attitude like that to which Valerian was reduced, was the best statue that could be erected in honour of his victory. This horrid life of insult and sufferance continued for seven years, and was at length terminated by the cruel Persian's commanding his prisoner's eyes to be plucked out, and afterwards causing him to be dead alive.

The news of the defeat of the Roman army by the Persians, and the captivity of Valerian, no sooner reached the barbarous nations at war with Rome, than they poured on all sides into the Roman territories in incredible multitudes, threatening the empire, and Rome itself, with utter destruction. The Goths and Scythians ravaged Pontus and Asia, committing every where dreadful devastations; the Alemanni and Franks having over-run Rhætia, advanced as far as Ravenna; putting all to fire and sword; the Quadi and Sarmatians seized on great part of Dacia and Pannonia; while other barbarous nations, invading Spain, made themselves masters of Tarraco and other important places in that province. In the mean time Gallienus, the son of Valerian, having promised to revenge his father's captivity, and repress the barbarians, was chosen emperor without any opposition. He was at that time in Gaul; but hastened into Italy, from whence he drove out the barbarians, either by the terror of his approach, or by overcoming them in battle.—In Dacia and Pannonia, also, the barbarians were driven back by Regillianus, who commanded there, and who is said to have gained several victories in one day.

But in the mean time, one Ingenuus, a man of great reputation in war, and universally beloved both by the people and soldiery, caused himself to be proclaimed emperor in Pannonia, where he was generally acknowledged as well as in Mœsia. Gallienus no sooner heard of his revolt, than he marched from the neighbourhood of Ravenna, where he then was, into Illyricum, engaged Ingenuus, and put him to flight. Some authors tell us, that Ingenuus was killed after the battle by his own soldiers; while others affirm, that he put an end to his own life to avoid falling into the hands of Gallienus, who used his victory with a cruelty hardly to be paralleled. The following letter to Verianus Celer, one of his officers, will show the disposition of this emperor: "I shall not be satisfied (says he) with your putting to death only such as have borne arms against me, and might have fallen in the field: you must in every city destroy all the males, old and young; spare none who have wished ill to me; none who have spoken ill of me the son of Valerian, the father and brother of princes. Ingenuus emperor! Tear, kill, cut in pieces without mercy: you understand me; do then as you know I would do, who have written to you with my own hand." In consequence of these cruel orders, a most dreadful havock was made among that unhappy people; and, in several cities, not one male child was left alive. The troops who had formerly served under Ingenuus, and the inhabitants of Mœsia who had escaped the general

slaughter, provoked by these cruelties, proclaimed Regillianus emperor. He was a Dacian by birth, descended, as was said, from the celebrated king Decabalus whom Trajan had conquered; and had, by several gallant actions, gained reputation in the Roman armies. After he was proclaimed emperor, he gained great advantages over the Sarmatians; but was soon after murdered by his own soldiers. These revolts were quickly followed by many others. Indeed it is not surprising, at a time when the reins of government were held with so loose an hand, that a crowd of usurpers should start up in every province of the empire. The great number of usurpers who pretended to the empire about this time have been distinguished by the name of the *thirty tyrants*. However, there were only 19; viz. Cyriades, Macrianus, Balista, Udenatus, and Zenobia in the east: in Gaul, and the western provinces, Posthumus, Lollianus, Victorinus and his mother Victoria, Marius, and Tetricus; in Illyricum, and on the confines of the Danube, Ingenuus, Regillianus, and Aureolus; in Pontus, Saturninus; in Isauria, Trebellianus; in Thessaly, Piso; in Achaia, Valens; in Egypt, Æmilianus; and in Africa, Celsus. Several of these pretenders to the empire, however, though branded with the opprobrious appellation of tyrants, were eminent examples of virtue, and almost all of them were possessed of a considerable share of vigour and ability. The principal reason assigned for their revolt was, the infamous character of Gallienus, whom neither officers nor soldiers could bear to serve. Many of them, however, were forced by the soldiers to assume the imperial dignity much against their will. "You have lost," said Saturninus to his soldiers when they invested him with the purple, "a very useful commander, and have made a very wretched emperor." The apprehensions of Saturninus were justified by the event. Of the 19 usurpers already mentioned, not one died a natural death; and in Italy and Rome Gallienus alone continued to be acknowledged emperor. That prince indeed honoured Odenatus prince of Palmyra with the title of *Augustus*, who continued to possess an independent sovereignty in the east all his lifetime, and on his death transmitted it to his wife Zenobia. See PALMYRA.

The consequences of these numerous usurpations were the most fatal that can be conceived. The elections of these precarious emperors, their life and death, were equally destructive to their subjects and adherents. The price of their elevation was instantly paid to the troops by an immense donative drawn from the exhausted people. However virtuous their character, and however pure their intentions might be, they found themselves reduced to the necessity of supporting their usurpation by frequent acts of rapine and cruelty. When they fell, they involved armies and provinces in their fall, as appears from the letter of Gallienus already quoted. Whilst the forces of the state were dispersed in private quarrels, the defenceless provinces lay exposed to every invader. The bravest usurpers were compelled, by the perplexity of their situation, to conclude dishonourable treaties with the barbarians, and even to submit to shameful tributes, and introduce such numbers of barbarians into the Roman service as seemed sufficient at once to overthrow the empire.

But

Rome.
496
Gallienus
murdered,
and is suc-
ceeded by
Claudius.

But when the empire seemed thus ready to sink at once, it suddenly revived on the death of Gallienus, who was murdered by Martian, one of his own generals, while he besieged Aureolus, one of the tyrants, in Milan. His death gave general satisfaction to all, except his soldiers, who hoped to reap the reward of their treachery by the plunder of Milan. But being frustrated in these expectations, and in some measure kept within bounds by the largesses of Martian, Flavius Claudius was nominated to succeed, and joyfully accepted by all orders of the state, and his title confirmed by the senate and the people.

We are not sufficiently assured of this emperor's lineage and country. Some affirm that he was born in Dalmatia, and descended from an ancient family there; others assert that he was a Trojan; and others, that he was son to the emperor Gordian. But, whatever might have been his descent, his merits were by no means doubtful. He was a man of great valour and conduct, having performed the most eminent services against the Goths, who had long continued to make irruptions into the empire. He was now about 35 years old, equally remarkable for the strength of his body and the vigour of his mind; he was chaste and temperate, a rewarder of the good, and a severe punisher of such as transgressed the laws. Thus endowed, therefore, he in some measure put a stop to the precipitate decline of the empire, and once more seemed to restore the glory of Rome.

497
Who de-
feats the
Goths, and
retrieves the
affairs of
the empire,

His first success, upon being made emperor, was against Aureolus, whom he defeated near Milan. His next expedition was to oppose the Goths, against whom he led a very numerous army. These barbarians had made their principal and most successful irruptions into Thrace and Macedonia, swarmed over all Greece, and had pillaged the famous city of Athens, which had long been the school of all the polite arts to the Romans. The Goths, however, had no veneration for those embellishments that tend to soften and humanize the mind, but destroyed all monuments of taste and learning with the most savage alacrity. It was upon one of these occasions, that, having heaped together a large pile of books in order to burn them, one of the commanders dissuaded them from the design, alleging, that the time which the Grecians should waste on books would only render them more unqualified for war. But the empire seemed to tremble, not only on that side, but almost on every quarter. At the same time, above 300,000 of these barbarians (the Heruli, the Trutangi, the Veturgi, and many nameless and uncivilized nations) came down the river Danube, with 2000 ships, fraught with men and ammunition, spreading terror and devastation on every side.

In this state of universal dismay, Claudius alone seemed to continue unshaken. He marched his disproportioned army against the savage invaders; and though but ill prepared for such an engagement, as the forces of the empire were then employed in different parts of the world, he came off victorious, and made an incredible slaughter of the enemy. The whole of their great army was either cut to pieces or taken prisoners: houses were filled with their arms; and scarce a province of the empire, that was not furnished with slaves from those that survived the defeat. These successes were followed by many others in different parts of the empire; so that

the Goths, for a considerable time after, made but a feeble opposition. He some time after marched against the revolted Germans, and overthrew them with considerable slaughter. His last expedition was to oppose Tetricus and Zenobia, his two puissant rivals in the empire. But on his march, as he approached near Sirmium, in Pannonia, he was seized with a pestilential fever, of which he died in a few days, to the great regret of his subjects, and the irreparable loss of the Roman empire. His reign, which was not quite two years continuance, was active and successful; and such is the character given of him by historians, that he is said to have united in himself the moderation of Augustus, the valour of Trajan, and the piety of Antoninus.

Immediately after the death of Claudius, the army made unanimous choice of Aurelian, who was at that time master of the horse, and esteemed the most valiant commander of his time. However, his promotion was not without opposition on the part of the senate, as Quintillus, the brother of the deceased emperor, put in his claim, and was for a while acknowledged at Rome. But his authority was of very short duration; for finding himself abandoned by those who at first instigated him to declare for the throne, he chose to prevent the severity of his rival by a voluntary death, and causing his veins to be opened, expired, after having reigned but 17 days.

Aurelian being thus universally acknowledged by all the states of the empire, assumed the command, with a greater show of power than his predecessors had enjoyed for some time before. This active monarch was born of mean and obscure parentage in Dacia, and was about 35 years old at the time of his coming to the throne. He had spent the early part of his life in the army, and had risen through all the gradations of military duty. He was of unshaken courage and amazing strength; he in one engagement killed 40 of the enemy with his own hand, and above 900 at several different times. In short, his valour and expedition were such, that he was compared to Julius Cæsar; and, in fact, only wanted mildness and clemency to be every way his equal.

The whole of this monarch's reign was spent in repressing the irruptions of the northern nations, in humbling every other pretender to the empire, and punishing the monstrous irregularities of his own subjects. He defeated the Marcomanni, that had invaded Italy, in three several engagements, and at length totally destroyed their army. He was not less successful against Zenobia, the queen of the East, a woman of the most heroic qualifications, who had long disclaimed the Roman power, and established an empire of her own, as is related under the article PALMYRA.

Aurelian having thus brought back peace to the empire, endeavoured, by the rigours of justice, to bring back virtue also. He was very strict in punishing the crimes of the soldiery: in his orders to his lieutenants, he insisted that the peasants should not be plundered upon any pretences; that not even a grape, a grain of salt, or a drop of oil, should be exacted unjustly. He caused a soldier, who had committed adultery with his hostess, to have his feet tied to the tops of two trees, forcibly bent at top to meet each other; which being let loose, and suddenly recoiling, tore the criminal

498
Claudius
dies, and
succeeded
by Aurelian.

499
His great
success
against the
barbarians

Rome. criminal in two. This was a severity that might take the name of cruelty; but the vices of the age, in some measure, required it. In these punishments inflicted on the guilty, the Christians, who had all along been growing more numerous, were sharers. Against these he drew up several letters and edicts, which showed that he intended a very severe persecution; but if we may believe the credulous historians of the times, he was diverted just as he was going to sign them by a thunderbolt, which fell so near his person, that all the people judged him to be destroyed.

But, however Heaven might have interposed on this occasion, it is certain that his severities at last were the cause of his destruction. Menesthus, his principal secretary, having been threatened by him for some fault which he had committed, began to consider how he might prevent the meditated blow. For this purpose, he forged a roll of the names of several persons, whom he pretended the emperor had marked out for death, adding his own to strengthen him in the confidence of the party. The scroll thus contrived was shown with an air of the utmost secrecy to some of the persons concerned; and they, to procure their safety, immediately agreed with him to destroy the emperor. This resolution was soon put in execution; for, as the emperor passed with a small guard from Uraclea, in Thrace, towards Byzantium, the conspirators set upon him at once, and slew him with very small resistance. He was slain in the 60th, or, as some say, in the 63d year of his age, after a very active reign of almost five years.

500
e s mur-
red.

501
acitus
of n em-
por.

The number of pretenders to the throne, which had formerly infested the empire, were, by the last monarch's activity, so entirely removed, that there now seemed to be none that would venture to declare himself a candidate. The army referred the choice to the senate; and, on the other side, the senate declined it; so that a space of near eight months elapsed in these negotiations. At length, however, the senate made choice of Tacitus, a man of great merit, and noway ambitious of the honours that were offered him. Upon being solicited to accept the empire, he at first refused, and retired to his country-house in Campania, to avoid their importunities; but being at length prevailed upon, he accepted the reins of government, being at that time 75 years old.

One of the first acts of his government was the punishment of those who had conspired against the late emperor. Menesthus was impaled alive, his body being thrown to be devoured by wild beasts; his estate also was confiscated to the exchequer; and his ready money, which was very considerable, applied towards paying the army. During this short reign, the senate seemed to have a large share of authority, and the historians of the times are liberal of their praises to such emperors as were thus willing to divide their power.— Upon endeavouring to obtain the consulship for his brother Probus, he was refused it by the senate; at which he seemed no way moved, but calmly remarked that the senate best knew whom to choose. This moderation prevailed in all the rest of his conduct; he was extremely temperate; his table was plain, and furnished with nothing expensive; he even prohibited his empress from wearing jewels, and forbade the use of gold and embroidery. He was fond of learning, and the memory of such men as had deserved well of their

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country. He particularly esteemed the works of his namesake Tacitus the historian; commanding that they should be placed in every public library throughout the empire, and that many copies of them should be transcribed at the public charge. A reign begun with such moderation and justice, only wanted continuance to have made the empire happy; but after enjoying the empire about six months, he died of a fever in his march to oppose the Persians and Scythians, who had invaded the eastern parts of the empire.

Rome.

502
His death

Upon the death of Tacitus the army seemed divided in the choice of an emperor; one part of it chose Florianus, brother to the deceased; but the majority were for some time undetermined. They alleged amongst each other the necessity of choosing one eminent for valour, honour, piety, clemency, and probity; but the last virtue being that chiefly insisted upon, the whole army, as if by common consent, cried out that Probus should be emperor. He was accordingly confirmed in this dignity with the usual solemnities; and Florianus finding himself deserted, even by those legions who had promised to stand up in his support, opened his arteries and bled himself to death.

Probus was 44 years old when he ascended the throne, being born of noble parentage at Sirmium in Pannonia, and bred up a soldier from his youth. He began early to distinguish himself for his discipline and valour; being frequently the first man who in besieging towns scaled the walls, or that burst into the enemy's camp. He was no less remarkable for single combats, and saving the lives of many eminent citizens. Nor was his activity and courage, when elected to the empire, less apparent, than in his private station. He first repressed the Germans in Gaul, of whom he slew 400,000. He then marched into Dalmatia, to oppose and subdue the Sarmatians. From thence he led his forces into Thrace, and forced the Goths to sue for peace. He after that turned his arms towards Asia; he subdued the province of Isauria; and marching onward, conquered a people called the *Blemyes*; who, leaving their native forests of Ethiopia, had possessed themselves of Arabia and Judea, and had continued in a state of rebellion since the reign of Gallienus. Narsis also, the king of Persia, submitted at his approach; and upon his return into Europe, he divided the depopulated parts of Thrace among its barbarous invaders; a circumstance that afterwards produced great calamities to the empire.

503
Probus raised to the empire.

504
His conquests.

His diligence was not less conspicuous in suppressing intestine commotions. Saturninus, being compelled by the Egyptians to declare himself emperor, was defeated and slain. Proculus also (a person remarkable only for his great attachment to women, and who boasted in a letter, that, having taken 100 Sarmatian virgins prisoners, he deprived ten of that name in one night, and all the rest within a fortnight) set up against the emperor; but was compelled to fly, and at length delivered up by the Germans. At the same time Conosus (who was a remarkable votary to Bacchus, being able to drink as much wine as ten could do, without being disordered) rebelled, and being overcome hanged himself in despair. Probus, when he saw him immediately after his death, could not avoid pointing to him, and saying, "There hangs not a man but a cask." Still, however, notwithstanding every effort to give quiet to the empire,

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the

Rome. the barbarians who surrounded it kept it in continual alarms. They were frequently repulsed into their native wilds, but they as certainly returned with fresh rage and increased ferocity. The Goths and Vandals, finding the emperor engaged in quelling domestic disputes, renewed their accustomed inroads, and once more felt the punishment of their presumptions. They were conquered in several engagements; and Probus returned in triumph to Rome. His active temper, however, would not suffer him to continue at rest whilst a single enemy was left to conquer. In his last expedition he led his soldiers against the Persians; and going through Sirmium, the place of his nativity, he there employed several thousands of his soldiers in draining a fen that was inconvenient to the inhabitants. The fatigues of this undertaking, and the great restraint that was laid upon the soldiers' licentious manners, produced a conspiracy, which ended in his ruin: for taking the opportunity as he was marching into Greece, they set upon and slew him after he had reigned six years and four months with general approbation.

505
Is murdered.

507
Reigns of
Carus, Carinus, and Numerianus.

Carus, who was prætorian prefect to the deceased emperor, was chosen by the army to succeed him; and he, to strengthen his authority, named his two sons Carinus and Numerianus with him in command; the former of whom was as much sullied by his vices, as the youngest was virtuous, modest, and courageous. The new emperor had scarce time to punish the murderers of the late monarch, when he was alarmed by a fresh irruption of the Sarmatians; over whom he gained a signal victory. The Persian monarch also made some attempts upon the empire; but Carus assured his ambassadors, that if their master persisted in his obstinacy, all his fields should shortly be as bare as his own bald head, which he showed them. In consequence of this threat, he marched to the very walls of Ctesiphon, and a dreadful battle ensuing, he once more gained a complete victory. What the result of this success might have been, is not known; for he was shortly after struck dead by lightning in his tent, with many others that were round him. Numerianus, the youngest son, who accompanied his father in this expedition, was inconsolable for his death; and brought such a disorder upon his eyes with weeping, that he was obliged to be carried along with the army, shut up in a close litter. The peculiarity of his situation, after some time, excited the ambition of Aper, his father-in-law, who supposed that he could now, without any great danger, aim at the empire himself. He therefore hired a mercenary villain to murder the emperor in his litter; and the better to conceal the fact, gave out that he was still alive, but unable to endure the light. In this manner was the dead body carried about for some days, Aper continuing to attend it with the utmost appearance of respect, and to take orders as usual. The offensiveness, however, of its smell at length discovered the treachery, and excited an universal uproar throughout the army. In the midst of this tumult, Dioclesian, one of the most noted commanders of his time, was chosen emperor, and with his own hand slew Aper; having thus, as it is said, fulfilled a prophecy, which had said, that Dioclesian should be emperor after he had slain a boar; alluding to the name of his rival, which signifies a boar. Carinus, the remaining son, did not long survive his father and brother; for giving himself up to his vices,

and yet at the same time opposing the new-made emperor, the competitors led their forces into Mesia; where Dioclesian being victorious, Carinus was slain by a tribune of his own army, whose wife he had formerly abused.

Dioclesian was a person of mean birth; being accounted, according to some, the son of a scrivener; and of a slave, according to others. He received his name from Dioclea, the town in which he was born; and was about 40 years old when he was elected to the empire. He pardoned all who had joined Carinus, without injuring either their fortunes or honours. Conscious also that the weight of empire was too heavy for one alone to sustain, he took in Maximian, his general, as a partner in the fatigues of duty, making him his equal and companion on the throne. Thus mutually assisting each other, these two continued to live in strict friendship; and though somewhat differing in temper (as Maximian was rather a man of vicious inclinations), yet they concurred in promoting the general good, and humbling their enemies. And it must be observed, that there never was a period in which there were more numerous or formidable enemies to oppose.

509
Dioclesian raised to the empire.

509
Take. Maximian to his partner.

The peasants and labourers in Gaul made a dangerous insurrection, under the conduct of Amandus and Helianus, but were subdued by Maximian. Achilleus, who commanded in Egypt, proclaimed himself emperor; and it was not without many bloody engagements that he was overcome, and condemned by Dioclesian to be devoured by lions. In Africa, the Roman legions, in like manner, joined with many of the natives, seized upon the public revenues, and plundered those who continued in their duty. These were also subdued by Maximian; and, after a long dubious war, constrained to sue for peace. About the same time, a principal commander in Britain, named Carausius, proclaimed himself emperor, and possessed himself of the island. To oppose this general's claims, Maximian made choice of Constantius Chlorus, whom he created Cæsar, and married to Theodora his daughter-in-law. He, upon his arrival in Britain, finding Carausius very strong, and continually reinforced from Germany, thought proper to come to an accommodation; so that this usurper continued for seven years in quiet possession of the whole island, till he was slain by Alektus, his friend and intimate. About this time also, Narseus, king of Persia, began a dangerous war upon the empire, and invaded Mesopotamia. To stop the progress of the enemy upon this quarter, Dioclesian made choice of Galerius (surnamed *Armentarius*, from the report of his being born of a cow-herd in Dacia); and he likewise was created Cæsar. His success also, though very doubtful in the beginning, was in the end terminated according to his wishes. The Persians were overcome in a decisive engagement, their camp plundered and taken, and their king's wives and children made prisoners of war. There only remained, of all the enemies of the Roman empire, those who lay to the northward unsubdued. These were utterly unconquerable, as well upon account of their savage fierceness, as the inhospitable severity of the climate and soil from whence they issued. Ever at war with the Romans, they issued forth, when the armies that were to repress their invasions were called away; and upon their return, they as suddenly withdrew into cold, barren, and inaccessible places.

510
Insurrections, and other calamities.

places, which only themselves could endure. In this manner the Goths, Sarmatians, Alani, Quadi, &c. poured down in incredible numbers; while every defeat seemed but to increase their strength and perseverance. Of these, multitudes were taken prisoners, and sent to people the more southern parts of the empire; still greater numbers were destroyed; and though the rest were driven back to their native forests, yet they continued ever mindful of their inveterate enmity, and, like a savage beast, only continued inactive, till they had licked their wounds for a new encounter.

During this interval, as if the external miseries of the empire were not sufficient, the tenth and last great persecution was renewed against the Christians. This is said to have exceeded all the former in severity: and such was the zeal with which it was pursued, that, in an ancient inscription, we are informed that they had effaced the name and superstition of the Christians, and had restored and propagated the worship of the gods. Their attempts, however, were but the malicious efforts of an expiring party; for Christianity shortly after was established by law, and triumphed over the malice of all its enemies. In the midst of the troubles raised by this persecution, and of the contests that struck at the internal parts of the state, Dioclesian and Maximian surprised the world by resigning their dignities on the same day, and both retiring into private stations. Historians are much divided concerning the motives that thus induced them to give up those honours which they had purchased with so much danger. Some ascribe it to the philosophical turn of Dioclesian; and others, to his being disgusted with the obstinacy of his Christian subjects: but Lactantius asserts, that he was compelled to it, together with his partner, by Galerius, who coming to Nicomedia, upon the emperor's recovery from a great sickness, threatened him with a civil war in case he refused to resign. However, of this we are well assured, that he still preserved a dignity of sentiment in his retirement, that might induce us to believe he had no other motive for resignation than the love of quiet, and the consciousness of his inability to discharge on a sick-bed the duties of a sovereign. Having retired to his birth-place, he spent his time in cultivating his garden, assuring his visitors that then only he began to enjoy the world, when he was thought by the rest of mankind to forsake it. When also some attempted to persuade him to resume the empire, he replied, That if they knew his present happiness, they would rather endeavour to imitate than disturb it. In this contented manner he lived some time, and at last died either by poison or madness, it is uncertain which. His reign, which continued 20 years, was active and useful; and his authority, tinged with severity, was well adapted to the depraved state of morals at that time.

Maximian, his partner in the empire and in resignation, was by no means so contented with his situation. He longed once more for power, and disturbed the two succeeding reigns with various efforts to resume it; attempting to engage Dioclesian in the same design. Being obliged to leave Rome, where he had bred great confusion, he went over into Gaul, where he was kindly received by Constantine, the then acknowledged emperor of the west. But here also continuing his intrigues, and endeavouring to force his own daughter and destroy her husband, he was detected, and condemn-

ed to die by whatever death he should think proper; ^{Rome.} and Lactantius tells us that he chose hanging.

Upon the resignation of the two emperors, the two ⁵¹³ Cæsars whom they had formerly chosen were univer-^{Constantinus, Chlo-}sally acknowledged as their successors. Constantius, ^{tus, and} Chlorus, who was so called from the plainness of his ^{Galerius,} complexion, was virtuous, valiant, and merciful. Ga-^{emperors.}lerius, on the other hand, was brave, but brutal, incontinent, and cruel. As there was such a disparity in their tempers, they readily agreed, upon coming into full power, to divide the empire; Constantius being appointed to govern the western parts; namely, Italy, Sicily, the greatest part of Africa, together with Spain, Gaul, Britain, and Germany: Galerius had the eastern parts allotted to his share; to wit, Illyricum, Pannonia, Thrace, Macedonia, all the provinces of Greece, and the Lesser Asia, together with Egypt, Syria, Judea, and all the countries eastward. The greatness of the division, however, soon induced the emperors to take in two partners more, Severus and Maximin, who were made Cæsars, and assisted in the conducting of affairs; so that the empire now was under the guidance of four persons, all invested with supreme authority.

We are informed but of few particulars of the reign of Constantius, except a detail of his character, which appears in every light most amiable. He was frugal, chaste, and temperate. His mercy and justice were equally conspicuous in his treatment of the Christians, whom he would not suffer to be injured; and when at length persuaded to displace all the Christian officers of his household that would not change their religion, when some of them complied he sent them away in disgrace; alleging, that those who were not true to their God, would never be faithful to their prince.

In the second year of his reign he went over into Britain; and leaving his son Constantine as a kind of hostage in the court of his partner in the empire, took up his residence at York. He there continued in the practice of his usual virtues; till falling sick, he began to think of appointing his son for his successor. He accordingly sent for him with all speed; but he was past recovery before his arrival: notwithstanding, he received him with marks of the utmost affection, and raising himself in his bed, gave him several useful instructions, particularly recommending the Christians to his protection. He then bequeathed the empire to his care; and crying out, that none but the pious Constantine should succeed him, he expired in his arms.

In the mean time, Galerius, his partner in the empire, being informed of Constantine's advancement, testified the most ungovernable rage, and was even going to condemn the messenger who brought him the account: but being dissuaded, he seemed to acquiesce in what he could not prevent, and sent him the marks of royalty; but at the same time declared Severus emperor, in opposition to his interests. Just about this time also, another pretender to the empire started up. This was ⁵¹⁴ ^{Maxentius} Maxentius, a person of mean extraction; but very much ^{usurps the} favoured by the soldiers, whom he permitted to pillage ^{throne.} at discretion. In order to oppose Maxentius, Severus led a numerous army towards the gates of Rome; but his soldiers considering against whom they were to fight, immediately abandoned him; and shortly after he put an end to his own life, by opening his veins. To revenge his death, Galerius marched into Italy, re-

Rome.

solving to ruin the inhabitants, and to destroy the whole senate. His soldiers, however, upon approaching the capital began to waver in their resolutions: wherefore he was obliged to have recourse to intreaties, imploring them not to abandon him; and, retiring by the same route by which he had advanced, made Licinius, who was originally the son of a poor labourer in Dacia, Cæsar, in the room of Severus who was slain. This seemed to be the last act of his power; for shortly after he was seized with a very extraordinary disorder in his privities, which baffled all the skill of his physicians, and carried him off, after he had languished in torments for near the space of a year. His cruelty to the Christians was one of the many crimes alleged against him; and their historians have not failed to aggravate the circumstances of his death as a judgment from Heaven for his former impiety. However this be, he abated much of his ferocities against them on his deathbed; and revoked those edicts which he had formerly published, tending to their persecution, a little before his death.

515
Dreadful
death of
Galerius.

Constantine being thus delivered from his greatest opponent, might now be considered as possessing more power than any of his rivals who were yet remaining. The empire was at that time divided between him and three others: Maxentius, who governed in Rome, a person of a cruel disposition, and a steadfast supporter of paganism; Licinius, who was adopted by Galerius, and commanded in the east; and likewise Maximin, who had formerly been declared Cæsar with Severus, and who also governed some of the eastern provinces.

For some time all things seemed to wear a peaceful appearance; till at length, either ambition, or the tyrannical conduct of Maxentius, induced Constantine to engage in an expedition to expel that commander from Rome, and to make the proper preparations for marching into Italy. It was upon this occasion that he formed a resolution which produced a mighty change in the politics as well as the morals of mankind, and gave a new turn to the councils of the wise, and the pursuits

516
Constantine's vision and conversion to Christianity.

ambition. One evening, as we are told by Eusebius, the army being upon its march toward Rome, Constantine was taken up with various considerations upon the fate of sublunary things, and the dangers of his approaching expedition: sensible of his own incapacity to succeed without divine assistance, he employed his meditations upon the opinions that then were chiefly agitated among mankind, and sent up his ejaculations to Heaven to inspire him with wisdom to choose the path he ought to pursue. It was then, as the sun was declining, that there suddenly appeared a pillar of light in the heavens, in the fashion of a cross, with this inscription, ΤΟΤΩ ΝΙΚΗ "In this overcome." So extraordinary an appearance did not fail to create astonishment both in the emperor and his whole army, who considered it as their dispositions led them to believe. Those who were attached to paganism, prompted by their auspices, pronounced it a most inauspicious omen, portending the most unfortunate events. But it made a different impression on the emperor's mind; who, as the account goes, was farther encouraged by visions the same night. He therefore, the day following, caused a royal standard to be made, like that which he had seen in the heavens; and commanded it to be carried before him in his wars, as an ensign of victory and celestial

protection. After this, he consulted with several of the principal teachers of Christianity, and made a public avowal of that sacred persuasion.

Constantine having thus attached his soldiers to his interest, who were mostly of the Christian persuasion, lost no time in entering Italy with 90,000 foot and 8000 horse; and soon advanced to the very gates of Rome. The unfortunate Maxentius, who had long given himself up to ease and debauchery, now began to make preparations when it was too late. He first put in practice all the superstitious rites which paganism taught to be necessary; and then consulted the Sibylline books; from whence he was informed, that on that great day the enemy of Rome should perish. This prediction, which was equivocal, he applied to Constantine; wherefore, leaving all things in the best posture, he advanced from the city with an army of 100,000 foot and 18,000 horse. The engagement was for some time fierce and bloody, till his cavalry being routed, victory declared upon the side of his opponent, and he himself was drowned in his flight by the breaking down of a bridge as he attempted to cross the river Tiber.

Constantine, in consequence of this victory, entering the city, disclaimed all praises which the senate and people were ready to offer; ascribing his success to a superior power. He even caused the cross, which he was said to have seen in the heavens, to be placed at the right of all his statues, with this inscription: "That under the influence of that victorious cross, Constantine had delivered the city from the yoke of tyrannical power, and had restored the senate and people of Rome to their ancient authority." He afterwards ordained, that no criminal should for the future suffer death by the cross; which had formerly been the most usual way of punishing slaves convicted of capital offences. Edicts were soon after issued, declaring that the Christians should be eased from all their grievances, and received into places of trust and authority. Thus the new religion was seen at once to prevail over the whole Roman empire; and as that enormous fabric had been built and guided upon pagan principles, it lost a great deal of its strength and coherence when those principles were thus at once subverted.

Things continued in this state for some time, Constantine all the while contributing what was in his power to the interest of religion, and the revival of learning, which had long been upon the decline, and was almost wholly extinct in the empire. But in the midst of these assiduities, the peace of the empire was again disturbed by the preparations of Maximin, who governed in the east, and who, desirous of a full participation of power, marched against Licinius with a very numerous army. In consequence of this step, after many conflicts, a general engagement ensued, in which Maximin suffered a total defeat; many of his troops were cut to pieces, and those that survived submitted to the conqueror. Maximin, however, having escaped the general carnage, once more put himself at the head of another army, resolving to try the fortune of the field; but death prevented his design. As he died by a very extraordinary kind of madness, the Christians, of whom he was the declared enemy, did not fail to ascribe his end to a judgment from heaven; but this was the age in which false judgments and false miracles made up the bulk of their uninformative history.

Con-

Rome. Constantine and Licinius thus remaining undisputed possessors and partners in the empire, all things promised a peaceable continuance of friendship and power. However, it was soon found, that the same ambition that aimed after a part, would be content with nothing less than the whole. Pagan writers ascribe the rupture between these two potentates to Constantine; while the Christians, on the other hand, impute it wholly to Licinius. Both, perhaps, might have concurred: for Licinius is convicted of having persecuted Christianity, which was so highly favoured by his rival; and Constantine is known to have been the first to begin the preparations for an open rupture. Both sides exerted all their power to make opposition; and at the head of very formidable armies, came to an engagement near Cybalis, in Pannonia. Constantine, previous to the battle, in the midst of his Christian bishops, begged the assistance of Heaven; while Licinius, with equal zeal, called upon the pagan priests to intercede with the gods in his favour. Constantine, after an obstinate resistance from the enemy, became victorious; took their camp; and, after some time, compelled Licinius to sue for a truce, which was agreed upon. But this was of no long continuance; for soon after, the war breaking out afresh, and the rivals coming once more to a general engagement, it proved decisive. Licinius was entirely defeated, and pursued by Constantine into Nicomedia, where he surrendered himself up to the victor; having first obtained an oath that his life should be spared, and that he should be permitted to pass the remainder of his days in retirement. This, however, Constantine shortly after broke; for either fearing his designs, or finding him actually engaged in fresh conspiracies, he commanded him to be put to death, together with Martian his general, who some time before had been created Cæsar.

Constantine being now sole monarch of the empire, without a rival to divide his power, or any person from whose claims he could have the least apprehensions, resolved to establish Christianity on so sure a basis, that no new regulations should shake it. He commanded that in all the provinces of the empire the orders of the bishops should be exactly obeyed; a privilege of which, in succeeding times, these fathers made but a very indifferent use. He called also a general council of these, to meet at Nicea, in order to repress the heresies that had already crept into the church, particularly that of Arius. To this place repaired about 318 bishops, besides a multitude of presbyters and deacons, together with the emperor himself; who all, to about 17, concurred in condemning the tenets of Arius; who, with his associates, was banished into a remote part of the empire.

Having thus restored universal tranquillity to the empire, he was not able to ward off the calamities of a more domestic nature. As the histories of that period are entirely at variance with each other, it is not easy to tell the motives which induced him to put his wife Fausta and his son Crispus to death. The most plausible account is this: Fausta the empress, who was a woman of great beauty, but of extravagant desires, had long, though secretly, loved Crispus, Constantine's son by a former wife. She had tried every art to inspire this youth with a mutual passion; but, finding her more distant efforts ineffectual, had even the confidence to make him an open confession of her desires. This pro-

duced an explanation, which was fatal to both. Crispus received her addresses with detestation; and she, to be revenged, accused him to the emperor. Constantine, fired at once with jealousy and rage, ordered him to die without a hearing; nor did his innocence appear till it was too late for redress. The only reparation therefore that remained, was the putting Fausta, the wicked instrument of his former cruelty, to death; which was accordingly executed upon her, together with some others who had been accomplices in her falsehood and treachery.

But the private misfortunes of a few were not to be weighed against evils of a more general nature, which the Roman empire shortly after experienced. These arose from a measure which this emperor conceived and executed, of transferring the seat of the empire from Rome to Byzantium, or Constantinople, as it was afterwards called. Whatever might have been the reasons which induced him to this undertaking; whether it was because he was offended at some affronts he received at Rome, or that he supposed Constantinople more in the centre of the empire, or that he thought the eastern parts more required his presence, experience has shown that they were weak and groundless. The empire had long before been in the most declining state; but this in a great measure gave precipitation to its downfall. After this it never resumed its former splendor, but languished.

His first design was to build a city which he might make the capital of the world; and for this purpose, he made choice of a situation at Chalcedon in Asia Minor; but we are told, that in laying out the ground-plan, an eagle caught up the line and flew with it over to Byzantium, a city which lay upon the opposite side of the Bosphorus. Here, therefore, it was thought expedient to fix the seat of the empire; and indeed nature seems to have formed it with all the conveniences and all the beauties which might induce power to make it the seat of residence. It was situated on a plain that rose gently from the water; it commanded that strait which unites the Mediterranean with the Euxine sea, and was furnished with all the advantages which the most indulgent climate could bestow. This city, therefore, he beautified with the most magnificent edifices; he divided it into 14 regions; built a capitol, an amphitheatre, many churches, and other public works; and having thus rendered it equal to the magnificence of his idea, he dedicated it in a very solemn manner to the God of martyrs; in about two years after, repairing thither with his whole court.

This removal produced no immediate alteration in the government of the empire; the inhabitants of Rome, tho' with reluctance, submitted to the change; nor was there for two or three years any disturbance in the state, until at length the Goths, finding that the Romans had withdrawn all their garrisons along the Danube, renewed their inroads, and ravaged the country with unheard-of cruelty. Constantine, however, soon repressed their incursions, and so straitened them, that near 100,000 of their number perished by cold and hunger. These and some other insurrections being happily suppressed, the government of the empire was divided as follows. Constantine, the emperor's eldest son, commanded in Gaul and the western provinces; Constantius governed Africa and Illyricum; and

Constant

Rome.

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Transfers
the seat of
empire to
Constanti-
nople.

519
Licinius
overcome
and put to
death.

520
Constantine puts
his wife
and son to
death.

Rome. Constantine ruled in Italy. Dalmatius, the emperor's brother, was sent to defend those parts that bordered upon the Goths; and Annibalianus, his nephew, had the charge of Cappadocia and Armenia Minor. This division of the empire still farther contributed to its downfall: for the united strength of the state being no longer brought to repress invasions, the barbarians fought with superior numbers; and conquered at last, though often defeated. Constantine, however, did not live to feel these calamities. The latter part of his reign was peaceful and splendid; ambassadors from the remotest Indies came to acknowledge his authority; the Persians, who were ready for fresh inroads, upon finding him prepared to oppose, sent humbly to desire his friendship and forgiveness. He was above 60 years old, and had reigned above 30 years, when he found his health began to decline. To obviate the effects of his disorder, which was an intermitting fever, he made use of the warm baths of the city; but receiving no benefit from thence, he removed for change of air to Helenopolis, a city which he had built to the memory of his mother. His disorder increasing, he changed again to Nicomedia; where finding himself without hopes of recovery, he caused himself to be baptized; and having soon after received the sacrament, he expired, after a memorable and active reign of 32 years. This monarch's character is represented to us in very different lights: the Christian writers of that time adorning it with every strain of panegyric; the heathens, on the contrary, loading it with all the virulence of invective. He established a religion that continues the blessing of mankind; but pursued a scheme of politics that destroyed the empire.

522
Death of
Constantine.

523
Reign of
Valentinian.

From the time of Constantine to the division of the empire between Valentinian and his brother Valens, the history of Rome is related under the article CONSTANTINOPLE, where also that of the eastern part is carried down to the final destruction of that city by the Turks. In the beginning of the reign of Valentinian, the province of Libya Tripolitana was grievously oppressed by the barbarians of the desert, and almost equally so by Romanus its own governor. His conduct was so exceedingly oppressive, that the inhabitants sent a deputation to Valentinian, complaining of their unhappy situation, and desiring redress. Palladius was accordingly sent to inquire into the state of the province; but being gained over by Romanus, he made a false report to the emperor; and thus the unhappy province was left a prey to the merciless invaders and rapacious governor. During the rest of this reign the barbarians continued their inroads into the empire; and among others, we find the Saxons now putting in for a share of the spoils of the ruined empire: however, their army was at this time entirely cut off. At last Valentinian himself took the field against these northern barbarians; and entering the country of the Quadi, destroyed all with fire and sword. The barbarians on this were fain to sue for peace in a very humble manner; but Valentinian, falling into a great passion while speaking to them, threatened to extirpate the whole nation at once. His fury on this occasion produced an apoplexy, or some other mortal disorder; for he suddenly fell down, and being conveyed by his attendants into his chamber, he was seized with violent convulsive fits and contortions of all his limbs, in the agonies of which he expired,

in the year 375, the 55th of his age, and 12th of his reign.

After the death of Valentinian, his son Gratian took upon him the imperial dignity; soon after becoming master of the whole empire by the death of Valens. The transactions of his reign, and those of his partner Theodosius, are related under the article CONSTANTINOPLE, n° 77—89. The death of Theodosius gave the finishing stroke to the Roman affairs; his son Honorius, to whom he left the western empire, being possessed of no abilities whatever, and indeed seeming to have been but very little removed from an idiot. The barbarians appear to have been abundantly sensible of the advantages offered them by the death of Theodosius. He expired in the month of January; and before the accession of spring, the Goths were in arms. The barbarian auxiliaries also now declared their independency; and along with their countrymen, furiously assailed the declining empire. The Goths were now headed by an experienced commander, their celebrated king Alaric; who would have proved formidable even in better times of the empire. He first over-ran Greece, which he accomplished without opposition, through the treachery of the governor, who commanded the troops that defended the pass at Thermopylæ to retire at the approach of the enemy. Athens, Corinth, Argos, Sparta, yielded without resistance; and the whole country was ravaged and destroyed by the blood-thirsty barbarians. At last, in the year 397, he was opposed by Stilicho, the general of Honorius, a man of great valour and experience in war. The Goths were defeated with great loss, and afterwards besieged in their camp; but through mistake or negligence in the Roman commander, they were suffered to escape, and make themselves masters of the province of Epirus. Alaric then, having found means to conclude a treaty with the ministers of Constantinople, Stilicho was obliged to retire.

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Invasion
of the
Goths under
Alaric

Not long after this, Alaric invaded Italy itself. The emperor, struck with terror, would have abandoned the country and fled into Gaul: but this disgraceful and pernicious measure was opposed by Stilicho; who proposed to the court of Honorius, at that time at Milan, that if they would maintain their ground during his absence, he would soon return with an army capable of opposing the barbarians. This being agreed to, Stilicho immediately set out for Rætia, where the most considerable body of the Roman forces at that time was, and collected his troops with the utmost diligence. But in the mean time Honorius was in the greatest danger; having been obliged to take refuge in the town of Asta in Piedmont. To this place the Goths instantly laid siege, and a capitulation had been proposed, when the drooping spirits of Honorius were at once revived by the arrival of Stilicho, whom he had so long expected. The Goths were now besieged in their turn, and obliged to come to a decisive battle at Pollentia. The engagement lasted the whole day; but at last the Goths were compelled to retreat. Their camp was instantly invested; their entrenchments forced with great slaughter; the wife of Alaric was taken, with all the wealth which had been amassed in plundering Greece; while many thousands of Roman prisoners were released from the most deplorable slavery. The victory, however, was not so decisive but that Alaric

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Goths defeated at
Pollentia.

Alaric

laric continued still extremely formidable; and Stilicho chose rather to conclude a treaty with him, and allow him an annual pension, than to continue the war with vigour. Alaric, who was not very scrupulous in his observance of this treaty, in his retreat attempted to make himself master of the city of Verona: but Stilicho coming up with him near that place, gave him a terrible defeat, in which the loss was little less than it had been at Pollentia; after which he effected a retreat out of Italy, but not without the greatest difficulty and danger.

Italy being thus happily delivered, Honorius entered Rome in triumph, having Stilicho along with him in the triumphal chariot. On his entry into the city, he abolished the shows of gladiators; which, though forbidden by Constantine, had been tolerated by his successors, and even by Theodosius himself, out of complaisance to the people, who were beyond measure fond of that inhuman diversion. However, soon after, the emperor was obliged to leave the metropolis and retire to Ravenna, in order to secure himself from the barbarians, who now broke in upon the empire on all sides. Such multitudes now made their appearance, that it is not a little difficult to account for their sudden emigration. Mr Gibbon accounts for it from a supposed revolution in the north-eastern parts of China. "The Chinese annals (says he), as they have been interpreted by the learned industry of the present age, may be usefully applied to reveal the secret and remote causes of the fall of the Roman empire. The extensive territory to the north of the great wall was possessed, after the flight of the Huns, by the victorious Sienpi; who were sometimes broken into independent tribes, and sometimes re-united under a supreme chief; till at length styling themselves *Topa*, or "masters of the earth," they acquired a more solid confidence, and a more formidable power. The *Topa* soon compelled the pastoral nations of the eastern desert to acknowledge the superiority of their arms; they invaded China in a period of weakness and intestine discord; and these fortunate Tartars, adopting the laws and manners of the vanquished people, founded an imperial dynasty, which reigned near 160 years over the northern provinces of the monarchy. Some generations before they ascended the throne of China, one of the *Topa* princes had enlisted in his cavalry a slave of the name of *Moko*, renowned for his valour; but who was tempted, by the fear of punishment, to desert his standard, and to range the desert at the head of 100 followers. This gang of robbers and outlaws swelled into a camp, a tribe, a numerous people, distinguished by the appellation of *Geougen*; and their hereditary chieftains, the posterity of *Moko* the slave, assumed their rank among the Scythian monarchs. The youth Toulun, the greatest of his descendants, was exercised by those misfortunes which are the school of heroes. He bravely struggled with adversity, broke the imperious yoke of the *Topa*, and became the legislator of his nation, and the conqueror of Tartary. His troops were distributed into regular bands of 100 and of 1000 men; cowards were stoned to death; the most splendid honours were proposed as the reward of valour; and Toulun, who had knowledge enough to despise the learning of China, adopted only such arts and institutions as were favourable to the military spirit of his government. His

tents, which he removed in the winter season to a more southern latitude, were pitched during the summer on the fruitful banks of the Selenga. His conquests stretched from the Corea far beyond the river Irtysh. He vanquished, in the country to the north of the Caspian sea, the nation of the Huns; and the new title of *Khan*, on *Gagan*, expressed the fame and power which he derived from this memorable victory.

"The chain of events is interrupted, or rather is concealed, as it passes from the Volga to the Vistula, through the dark interval which separates the extreme limits of the Chinese and of the Roman geography. Yet the temper of the barbarians, and the experience of successive emigrations, sufficiently declare, that the Huns, who were oppressed by the arms of the *Geougen*, soon withdrew from the presence of an insulting victor. The countries towards the Euxine were already occupied by their kindred tribes; and their hasty flight, which they soon converted into a bold attack, would more naturally be directed towards the rich and level plains through which the Vistula gently flows into the Baltic sea. The north must again have been alarmed and agitated by the invasion of the Huns; and the nations who retreated before them must have pressed with incumbent weight on the confines of Germany. The inhabitants of those regions which the ancients have assigned to the Suevi, the Vandals, and the Burgundians, might embrace the resolution of abandoning to the fugitives of Sarmatia their woods and morasses; or at least of discharging their superfluous numbers on the provinces of the Roman empire. About four years after the victorious Toulun had assumed the title of *khan of the Geougen*, another barbarian, the haughty Rhodogast, or Radagaisus, marched from the northern extremities of Germany almost to the gates of Rome, and left the remains of his army to achieve the destruction of the west. The Vandals, the Suevi, and the Burgundians, formed the strength of this mighty host: but the Alani, who had found an hospitable reception in their new seats, added their active cavalry to the heavy infantry of the Germans; and the Gothic adventurers crowded so eagerly to the standard of Radagaisus, that by some historians he has been styled the *king of the Goths*. Twelve thousand warriors, distinguished above the vulgar by their noble birth or their valiant deeds, glittered in the van; and the whole multitude, which was not less than 200,000 fighting men, might be increased by the accession of women, of children, and of slaves, to the amount of 400,000 persons. This formidable emigration issued from the same coast of the Baltic which had poured forth the myriads of the Cimbri and Teutones to assault Rome and Italy in the vigour of the republic. After the departure of those barbarians, their native country, which was marked by the vestiges of their greatness, long ramparts, and gigantic moles, remained during some ages a vast and dreary solitude; till the human species was renewed by the powers of generation, and the vacancy was filled up by the influx of new inhabitants. The nations who now usurp an extent of land which they are unable to cultivate, would soon be assisted by the industrious poverty of their neighbours, if the government of Europe did not protect the claims of dominion and property.

"The correspondence of nations was in that age so

Rome.

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Radagaisus invades Italy with a prodigious army.

Rome.

imperfect and precarious, that the revolutions of the north might escape the knowledge of the court of Ravenna; till the dark cloud which was collected along the coast of the Baltic burst in thunder upon the banks of the Upper Danube. The emperor of the west, if his ministers disturbed his amusements by the news of the impending danger, was satisfied with being the occasion and the spectator of the war. The safety of Rome was intrusted to the counsels and the sword of Stilicho; but such was the feeble and exhausted state of the empire, that it was impossible to restore the fortifications of the Danube, or to prevent, by a vigorous effort, the invasion of the Germans. The hopes of the vigilant minister of Honorius were confined to the defence of Italy. He once more abandoned the provinces; recalled the troops; pressed the new levies, which were rigorously exacted, and pusillanimously eluded; employed the most efficacious means to arrest or allure the deserters; and offered the gift of freedom, and of two pieces of gold, to all the slaves who would enlist. By these efforts he painfully collected from the subjects of a great empire an army of 30,000 or 40,000 men; which, in the days of Scipio or Camillus, would have been instantly furnished by the free citizens of the territory of Rome. The 30 legions of Stilicho were reinforced by a large body of barbarian auxiliaries; the faithful Alani were personally attached to his service; and the troops of Huns and of Goths, who marched under the banners of their native princes Hullen and Sarus, were animated by interest and resentment to oppose the ambition of Radagaisus. The king of the confederate Germans passed, without resistance, the Alps, the Po, and the Appennine: leaving on one hand the inaccessible palace of Honorius, securely buried among the marshes of Ravenna; and on the other, the camp of Stilicho, who had fixed his head-quarters at Ticinum, or Pavia, but who seems to have avoided a decisive battle till he had assembled his distant forces. Many cities of Italy were pillaged, or destroyed; and the siege of Florence by Radagaisus is one of the earliest events in the history of that celebrated republic, whose firmness checked and delayed the unskilful fury of the barbarians. The senate and people trembled at their approach within 180 miles of Rome; and anxiously compared the danger which they had escaped with the new perils to which they were exposed. Alaric was a Christian and a soldier, the leader of a disciplined army; who understood the laws of war, who respected the sanctity of treaties, and who had familiarly conversed with the subjects of the empire in the same camps and the same churches. The savage Radagaisus was a stranger to the manners, the religion, and even the language, of the civilized nations of the south. The fierceness of his temper was exasperated by cruel superstition; and it was universally believed, that he had bound himself by a solemn vow to reduce the city into a heap of stones and ashes, and to sacrifice the most illustrious of the Roman senators on the altars of those gods who were appeased by human blood. The public danger, which should have reconciled all domestic animosities, displayed the incurable madness of religious faction. The oppressed votaries of Jupiter and Mercury respected, in the implacable enemy of Rome, the character of a devout pagan; loudly declared, that they were more apprehensive of the sacrifices than of the arms of Radagaisus;

and secretly rejoiced in the calamities of their country, which condemned the faith of their Christian adversaries.

“Florence was reduced to the last extremity; and the fainting courage of the citizens was supported only by the authority of St Ambrose, who had communicated in a dream the promise of a speedy deliverance. On a sudden they beheld from their walls the banners of Stilicho, who advanced with his united force to the relief of the faithful city; and who soon marked that fatal spot for the grave of the barbarian host. The apparent contradictions of those writers who variously relate the defeat of Radagaisus, may be reconciled without offering much violence to their respective testimonies. Orosius and Augustin, who were intimately connected by friendship and religion, ascribe this miraculous victory to the providence of God rather than to the valour of man. They strictly exclude every idea of chance, or even of bloodshed; and positively affirm, that the Romans, whose camp was the scene of plenty and idleness, enjoyed the distress of the barbarians, slowly expiring on the sharp and barren ridge of the hills of Fesulæ, which rise above the city of Florence. Their extravagant assertion, that not a single soldier of the Christian army was killed, or even wounded, may be dismissed with silent contempt; but the rest of the narrative of Augustin and Orosius is consistent with the state of the war and the character of Stilicho. Conscious that he commanded the last army of the republic, his prudence would not expose it in the open field to the headstrong fury of the Germans. The method of surrounding the enemy with strong lines of circumvallation, which he had twice employed against the Gothic king, was repeated on a larger scale, and with more considerable effect. The examples of Cæsar must have been familiar to the most illiterate of the Roman warriors; and the fortifications of Dyrrhachium, which connected 24 castles by a perpetual ditch and rampart of 15 miles, afforded the model of an intrenchment which might confine and starve the most numerous host of barbarians. The Roman troops had less degenerated from the industry than from the valour of their ancestors; and if the servile and laborious work offended the pride of the soldiers, Tuscany could supply many thousand peasants, who would labour, though perhaps they would not fight, for the salvation of their native country.—The imprisoned multitude of horses and men was gradually destroyed by famine, rather than by the sword; but the Romans were exposed, during the progress of such an extensive work, to the frequent attacks of an impatient enemy. The despair of the hungry barbarians would precipitate them against the fortifications of Stilicho; the general might sometimes indulge the ardour of his brave auxiliaries, who eagerly pressed to assault the camp of the Germans; and these various incidents might produce the sharp and bloody conflicts which dignify the narrative of Zosimus, and the Chronicles of Prosper and Marcellinus. A seasonable supply of men and provisions had been introduced into the walls of Florence; and the famished host of Radagaisus was in its turn besieged. The proud monarch of so many warlike nations, after the loss of his bravest warriors, was reduced to confide either in the faith of a capitulation, or in the clemency of Stilicho. But the death of the royal captive, who was ignominiously beheaded, disgraced the triumph of Rome and of Christianity; and

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Defeated
and de-
stroyed
Stilicho.

the short delay of his execution was sufficient to brand the conqueror with the guilt of cool and deliberate cruelty. The famished Germans who escaped the fury of the auxiliaries were sold as slaves, at the contemptible price of as many single pieces of gold: but the difference of food and climate swept away great numbers of those unhappy strangers; and it was observed, that the inhuman purchasers, instead of reaping the fruit of their labour, were soon obliged to add to it the expence of interring them. Stilicho informed the emperor and the senate of his success; and deserved a second time the glorious title of *Deliverer of Italy*.

"The fame of the victory, and more especially of the miracle, has encouraged a vain persuasion, that the whole army, or rather nation, of Germans, who migrated from the shores of the Baltic, miserably perished under the walls of Florence. Such indeed was the fate of Radagaisus himself, of his brave and faithful companions, and of more than one-third of the various multitude of Sueves and Vandals, of Alani and Burgundians, who adhered to the standard of their general. The union of such an army might excite our surprise, but the causes of separation are obvious and forcible; they were the pride of birth, the insolence of valour, the jealousy of command, the impatience of subordination, and the obstinate conflict of opinions, of interests, and of passions, among so many kings and warriors, who were untaught to yield or to obey. After the defeat of Radagaisus, two parts of the German host, which must have exceeded the number of 100,000 men, still remained in arms between the Apennine and the Alps, or between the Alps and the Danube. It is uncertain whether they attempted to revenge the death of their general: but their irregular fury was soon diverted by the prudence and firmness of Stilicho, who opposed their march, and facilitated their retreat; who considered the safety of Rome and Italy as the great object of his care, and who sacrificed with too much indifference the wealth and tranquillity of the distant provinces. The barbarians acquired, from the junction of some Pannonian deserters, the knowledge of the country and of the roads; and the invasion of Gaul, which Alaric had designed, was executed by the remains of the great army of Radagaisus.

"Yet if they expected to derive any assistance from the tribes of Germany who inhabited the banks of the Rhine, their hopes were disappointed. The Alemanni preserved a state of inactive neutrality; and the Franks distinguished their zeal and courage in the defence of the empire. In the rapid progress down the Rhine, which was the first act of the administration of Stilicho, he had applied himself with peculiar attention to secure the alliance of the warlike Franks, and to remove the irreconcilable enemies of peace and of the republic. Marcomir, one of their kings, was publicly convicted before the tribunal of the Roman magistrate of violating the faith of treaties. He was sentenced to a mild, but distant exile, in the province of Tuscany; and this degradation of the regal dignity was so far from exciting the resentment of his subjects, that they punished with death the turbulent Sunno, who attempted to revenge his brother, and maintained a dutiful allegiance to the princes who were established on the throne by the choice of Stilicho. When the limits of Gaul and Germany were shaken by the northern emigration, the Franks

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bravely encountered the single force of the Vandals; who, regardless of the lessons of adversity, had again separated their troops from the standard of their barbarian allies. They paid the penalty of their rashness; and 20,000 Vandals, with their king Godigisclus, were slain in the field of battle. The whole people must have been extirpated; if the squadrons of the Alani, advancing to their relief, had not trampled down the infantry of the Franks; who, after an honourable resistance, were compelled to relinquish the unequal contest. The victorious confederates pursued their march; and on the last day of the year, in a season when the waters of the Rhine were most probably frozen, they entered without opposition the defenceless provinces of Gaul. This memorable passage of the Suevi, the Vandals, the Alani, and the Burgundians, who never afterwards retreated, may be considered as the fall of the Roman empire in the countries beyond the Alps; and the barriers, which had so long separated the savage and the civilized nations of the earth, were from that fatal moment levelled with the ground.

"While the peace of Germany was secured by the attachment of the Franks and the neutrality of the Alemanni, the subjects of Rome, unconscious of their approaching calamities, enjoyed a state of quiet and prosperity, which had seldom blessed the frontiers of Gaul. Their flocks and herds were permitted to graze in the pastures of the barbarians; their huntsmen penetrated, without fear or danger, into the darkest recesses of the Hercynian wood. The banks of the Rhine were crowned, like those of the Tiber, with elegant houses and well cultivated farms; and if a poet descended the river, he might express his doubt on which side was situated the territory of the Romans. This scene of peace and plenty was suddenly changed into a desert, and the prospect of the smoking ruins could alone distinguish the solitude of nature from the desolation of man. The flourishing city of Mentz was surprised and destroyed; and many thousand Christians were inhumanly massacred in the church. Worms perished after a long and obstinate siege: Strasburg, Spire, Rheims, Tournay, Aras, Amiens, experienced the cruel oppression of the German yoke; and the consuming flames of war spread from the banks of the Rhine over the greatest part of the 17 provinces of Gaul. That rich and extensive country, as far as the Ocean, the Alps, and the Pyrenees, was delivered to the barbarians, who drove before them, in a promiscuous crowd, the bishop, the senator, and the virgin, laden with the spoils of their houses and altars."

In the midst of these calamities a revolt happened in Britain, where one Constantine, a common soldier, was raised to the imperial throne, merely for the sake of his name. However, he seems to have been a man of considerable abilities, and by no means unfit for the high dignity to which he was raised. He governed Britain with great prosperity; passed over into Gaul and Spain, the inhabitants of which submitted without opposition, being glad of any protector whatever from the barbarians. Honorius, incapable of defending the empire, or repressing the revolt, was obliged to acknowledge him for his partner in the empire. In the mean time, Alaric, with his Goths, threatened a new invasion unless he was paid a certain sum of money. Stilicho is said to have occasioned this demand, and to have insisted

Rome.

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The Vandals defeated by the Franks.

532

Gaul ravaged by the barbarians.

533

Revolt of Constantine, whom Honorius acknowledges as his partner in the empire.

Rome.
534
Stilicho disgraced and put to death.

ed upon sending him the money he demanded; and this was the cause of his disgrace and death, which happened soon after, with the extirpation of his family and friends. Nay, such was the general hatred of this unfortunate minister, that the soldiers quartered in the cities of Italy no sooner heard of his death, than they murdered the wives and children of the barbarians whom Stilicho had taken into the service of Honorius. The enraged husbands went over to Alaric, who made a new demand of money; which not being readily sent, he laid siege to Rome, and would have taken it, had not the emperor complied with his demand. The ransom of the city was 5000 pounds of gold, 30,000 of silver, 4000 silk garments, 3000 skins dyed purple, and 3000 pounds of pepper. On this occasion the heathen temples were stripped of their remaining ornaments, and among others of the statue of Valour; which the pagans did not fail to interpret as a presage of the speedy ruin of the state.

535
Rome taken and plundered by Alaric.

Alaric having received this treasure, departed for a short time: but soon after he again blocked up the city with a numerous army; and again an accommodation with Honorius was set on foot. However, for some reasons which do not clearly appear, the treaty was broken off, Rome was a third time besieged, and at last taken and plundered. Alaric, when upon the point of breaking into the city, addressing his soldiers, told them, that all the wealth in it was theirs, and therefore he gave them full liberty to seize it; but at the same time he strictly enjoined them to shed the blood of none but such as they should find in arms; and above all, to spare those who should take sanctuary in the holy places, especially in the churches of the apostles St Peter and St Paul; which he named, because they were most spacious, and consequently capable of affording an asylum to great numbers of people. Having given these orders, he abandoned the city to his Goths, who treated it no better, according to St Jerome, than the Greeks are said to have treated ancient Troy; for after having plundered it for the space of three, or, as others will have it, of six days, they set fire to it in several places; so that the stately palace of Sallust, and many other magnificent buildings, were reduced to ashes; nay, Procopius writes, that there was not in the whole city one house left entire; and both St Jerome and Philostorgius assert, that the great metropolis of the empire was reduced to an heap of ashes and ruins. Though many of the Goths, pursuant to the orders of their general, refrained from shedding the blood of such as made no resistance; yet others, more cruel and blood-thirsty, massacred all they met: so that the streets in some quarters of the city were seen covered with dead bodies, and swimming in blood. However, not the least injury was offered to those who fled to the churches; nay, the Goths themselves conveyed thither, as to places of safety, such as they were desirous should be spared. Many of the statues of the gods that had been left entire by the emperors as excellent pieces of art, were on this occasion destroyed, either by the Goths, who, though mostly Arians, were zealous Christians, or by a dreadful storm of thunder and lightning which fell at the same time upon the city, as if it had been sent on purpose to complete with them the destruction of idolatry, and abolish the small remains of pagan superstition. However, notwithstanding these accounts, some affirm that

the city suffered very little at this time, not so much as when it was taken by Charles V.

Alaric did not long survive the taking of Rome, being cut off by a violent fit of sickness in the neighbourhood of Rhegium. After his death the affairs of Honorius seemed a little to revive by the defeat and death of Constantine and some other usurpers; but the provinces of Gaul, Britain, and Spain, were now almost entirely occupied by barbarians; in which state they continued till the death of Honorius, which happened in the year 423, after an unfortunate reign of 28 years.

After some usurpations which took place on the death of Honorius, his nephew Valentinian III. was declared emperor of the west, and his mother Placidia regent during his minority. He was scarce seated on the throne, when the empire was attacked by the Huns under the celebrated Attila. The Romans, however, wretched and degenerate as they were, had they been unanimous, would even yet have been superior to their enemies. The empress then had two celebrated generals, Bonifacius and Aetius; who by their union might have saved the empire: but unhappily, through the treachery of Aetius, Bonifacius was obliged to revolt; and a civil war ensued, in which he lost his life. Aetius, however, notwithstanding his treachery, was pardoned, and put at the head of the forces of the empire. He defended it against Attila with great spirit and success, notwithstanding the deplorable situation of affairs, till he was murdered by Valentinian with his own hand, on a suspicion that he aspired to the empire. But in the mean time the provinces, except Italy itself, were totally over-run by the barbarians. Genferic king of the Vandals ravaged Africa and Sicily; the Goths, Suevians, Burgundians, &c. had taken possession of Gaul and Spain; and the Britons were oppressed by the Scots and Picts, so that they were obliged to call in the Saxons to their assistance, as is related under the article ENGLAND. In the year 455, Valentinian was murdered by one Maximus, whose wife he had ravished. Maximus immediately assumed the empire; but felt such violent anxieties, that he designed to resign it and fly out of Italy, in order to enjoy the quiet of a private life. However, being dissuaded from this by his friends, and his own wife dying soon after, he forced the empress Eudoxia to marry him. Eudoxia, who had tenderly loved Valentinian, provoked beyond measure at being married to his murderer, invited Genferic king of the Vandals into Italy. This proved a most fatal scheme: for Genferic immediately appeared before Rome; a violent tumult ensued, in which Maximus lost his life; and the city was taken and plundered by Genferic, who carried off what had been left by the Goths. A vessel was loaded with costly statues; half the covering of the capitol, which was of brass plated over with gold; sacred vessels enriched with precious stones; and those which had been taken by Titus out of the temple of Jerusalem; all of which were lost with the vessel in its passage to Africa.

Nothing could now be more deplorable than the state of the Roman affairs: nevertheless, the empire continued to exist for some years longer; and even seemed to revive for a little under Marjorianus, who was declared emperor in 458. He was a man of great courage, and possessed of many other excellent qualities. He

defeated

me. defeated the Vandals, and drove them out of Italy. With great labour he fitted out a fleet, of which the Romans had been long destitute. With this he designed to pass over into Africa; but, it being surprised and burnt by the enemy, he himself was soon after murdered by one Ricimer a Goth, who had long governed every thing with an absolute sway. After the death of Marjorianus, one Anthemius was raised to the empire: but beginning to counteract Ricimer, the latter openly revolted, besieged and took Rome; where he committed innumerable cruelties, among the rest putting to death the unhappy emperor Anthemius, and raising one Olybius to the empire. The transactions of his reign were very few, as he died soon after his accession. On his death, one Glycerius usurped the empire. He was deposed in 474, and one Julius Nepos had the name of emperor. He was driven out the next year by his general Orestes, who caused his son Augustus or Augustulus to be proclaimed emperor. But the following year, 476, the barbarians who served in the Roman armies, and were distinguished with the title of allies, demanded, as a reward for their services, the third part of the lands in Italy; pretending, that the whole country, which they had so often defended, belonged of right to them. As Orestes refused to comply with this insolent demand, they resolved to do themselves justice, as they called it; and, openly revolting, chose one Odoacer for their leader. Odoacer was, according to Ennodius, meanly born, and only a private man in the guards of the emperor Augustulus, when the barbarians revolting, chose him for their leader. However, he is said to have been a man of uncommon parts, equally capable of commanding an army and governing a state. Having left his own country when he was yet very young, to serve in Italy, as he was of a stature remarkably tall, he was admitted among the emperor's guards, and continued in that station till the present year; when, putting himself at the head of the barbarians in the Roman pay, who, though of different nations, had, with one consent, chosen him for their leader, he marched against Orestes and his son Augustulus, who still refused to give them any share of the lands in Italy.

539 al fai- of the ire. As the Roman troops were inferior, both in number and valour, to the barbarians, Orestes took refuge in Pavia, at that time one of the best fortified cities in Italy: but Odoacer, investing the place without loss of time, took it soon after by assault, gave it up to be plundered by the soldiers, and then set fire to it; which reduced most of the houses, and two churches, to ashes. Orestes was taken prisoner, and brought to Odoacer, who carried him to Placentia, and there caused him to be put to death, on the 28th of August, the day on which he had driven Nepos out of Ravenna, and obliged him to abandon the empire. From Placentia, Odoacer marched straight to Ravenna, where he found Paul, the brother of Orestes, and the young emperor Augustulus. The former he immediately put to death; but sparing Augustulus, in consideration of his youth, he stripped him of the ensigns of the imperial dignity, and confined him to Lucullanum, a castle in Campania; where he was, by Odoacer's orders, treated with great humanity, and allowed an handsome maintenance to support himself and his relations. Rome readily submitted to the conqueror, who immediately caused

himself to be proclaimed king of Italy, but would not assume the purple, or any other mark of the imperial dignity. Thus failed the very name of an empire in the West. Britain had been long since abandoned by the Romans; Spain was held by the Goths and Suevans; Africa, by the Vandals; the Burgundians, Goths, Franks, and Alans, had erected several tetrarchies in Gaul; at length Italy itself, with its proud metropolis, which for so many ages had given law to the rest of the world, was enslaved by a contemptible barbarian, whose family, country, and nation, are not well known to this day.

From this time, Rome has ceased to be the capital of an empire; the territories of the pope, to whom the city is now subject, being inconsiderable. The origin of the pope's temporal power, and the revolutions of Italy, are related under the article ITALY; and a sketch of the spiritual usurpations of the popes may be seen under the articles HISTORY, sect. ii. and REFORMATION; and likewise under the various historical articles as they occur in the course of this work.

It is thought that the walls of modern Rome take in nearly the same extent of ground as the ancient; but the difference between the number of buildings on this spot is very great, one half of modern Rome lying waste, or occupied with gardens, fields, meadows, and vineyards. One may walk quite round the city in three or four hours at most, the circumference being reckoned about 13 Italian miles. With regard to the number of the inhabitants, modern Rome is also greatly inferior to the ancient: for, in 1709, the whole of these amounted only to 138,568; among which were 40 bishops, 2686 priests, 3559 monks, 1814 nuns, 393 courtisans, about 8000 or 9000 Jews, and 14 Moors. In 1714, the number was increased to 143,000. In external splendor, and the beauty of its temples and palaces, modern Rome is thought by the most judicious travellers to excel the ancient. There was nothing in ancient Rome to be compared with St Peter's church in the modern. That Rome was able to recover itself after so many calamities and devastations, will not be matter of surprise, if we consider the prodigious sums that it has so long annually drawn from all countries of the Popish persuasion. These sums, though still considerable, have been continually decreasing since the Reformation. The surface of the ground on which Rome was originally founded is surprisingly altered. At present it is difficult to distinguish the seven hills on which it was first built, the low grounds being almost filled up with the ruins of the ancient streets and houses, and the great quantities of earth washed down from the hills by the violence of the rains. Anciently the suburbs extended a vast way on all sides, and made the city appear almost boundless; but it is quite otherwise now, the country about Rome being almost a desert. To this and other causes it is owing, that the air is none of the most wholesome, especially during the summer heats, when few go abroad in the day-time. No city at present in the world surpasses, or indeed equals, Rome, for the multiplicity of fine fountains, noble edifices, antiquities, curiosities, paintings, statues, and sculptures. The city stands on the Tiber, 10 miles from the Tuscan sea, 380 from Vienna, 560 from Paris, 740 from Amsterdam, 810 from London, and 900 from Madrid. The Tiber is subject to fre-

Rome.

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Description
of modern
Rome.

Rome.

quent inundations, by which it often does great damage. A small part of the city is separated from the other by the river, and is therefore called *Trastevere*, or beyond the Tiber. There are several bridges over the river, a great number of towers on the walls, and 20 gates. The remains of Rome's ancient grandeur consist of statues, colossuses, temples, palaces, theatres, naumachias, triumphal arches, circuses, columns, obelisks, fountains, aqueducts, mausoleums, thermæ or hot-baths, and other structures. Of modern buildings, the splendid churches and palaces are the most remarkable. Mr Addison says, it is almost impossible for a man to form in his imagination such beautiful and glorious scenes as are to be met with in several of the Roman churches and chapels. This gentleman tells us also, that no part of the antiquities of Rome pleased him so much as the ancient statues, of which there is still an incredible variety. Next to the statues, he says, there is nothing more surprising than the amazing variety of ancient pillars of so many kinds of marble. Rome is said to be well paved; but not well lighted, nor kept very clean. Two-thirds of the houses are the property of the churches, convents, and alms houses. Protestants are not obliged to kneel at the elevation of the host, or at meeting the eucharist in the streets; and they may have flesh-meat always at the inns, even during Lent. Here are many academies for promoting arts and sciences, besides the university. The carnival here is only during the eight days before Lent, and there are no such scenes of riot as at Venice: prostitutes, however, are publicly tolerated. To maintain good order, there is a body of 300 Sbirri, or Halberdeers, under their barigella, or colonel. There is little or no trade carried on in Rome, but a vast deal of money is spent by travellers and other strangers. The principal modern structures are the church of St Peter, and the other churches; the aqueducts and fountains; the Vatican, and the other palaces; the Campidoglio, where the Roman senate resides, &c. The principal remains of antiquity are the pila miliaria of fine marble; the equestrian brass statue of Marcus Aurelius Antoninus; the marble monument of the emperor Alexander Severus; marble busts of the emperors and their consorts; three brick arches of the temple of Peace, built by the emperor Vespasian; the triumphal arch of Septimus Severus and of Gallienus; the circus of Antoninus Caracalla; some parts of the cloaca-maxima; the columna Antonina, representing the principal actions of Marcus Aurelius; the columna Trajani, or Trajan's pillar; some fragments of the curia, or palace of Antoninus Pius, and of Nerva's forum; the mausoleum of Augustus, in the Strada Pontifici; the remains of the emperor Severus's tomb without St John's gate; the pyramid of Caius Cestus near St Paul's gate; the porphyry coffin of St Helen, and the original statue of Constantine the Great, in the church of St John of Lateran: a font of oriental granite, in the chapel of St Giovanni in fonte, said to have been erected by Constantine the Great; an Egyptian obelisk near the church of St Maria Maggiore; the stately remains of Dioclesian's baths; the celebrated Pantheon; the obelisks of Sestofris and Augustus by the Clementine college; the church of St Paul fuori della Mura, said to have been built by Constantine the Great; the Farnese Hercu-

les, in white marble, of a Colossian size and exquisite workmanship, in a court of the Farnese palace, and an admirable group cut out of one block of marble, in another court of the same palace. Besides these there are a great many more, which our bounds will not allow us to take any further notice of. Here is a great number of rich and well-regulated hospitals. Near the church of St Sebastiano alle Catacombe, are the most spacious of the catacombs, where the Christians, who never burned their dead, and such of the Pagan Romans as could not afford the expence of burning, were buried. Along the Via Appia, without St Sebastian's gate, were the tombs of the principal families of Rome, which at present are used for cellars and store-houses by the gardeners and vine-dressers.

ROMNEY, a town of Kent in England. It is one of the cinque-port towns, and is seated on a marsh of the same name, famous for feeding cattle; but the air is very unhealthy. It was once a large and populous place, but the retiring of the sea has reduced it very much; however, it sends two members to parliament.

ROMORENTIN, is a small town situated on the river Sautre, in the territory of Blaisois in France, famous for its woollen manufacture. It is said to be a very ancient place; and the inhabitants pretend that Cæsar built a tower here, of which there are still some considerable remains. They have a manufacture of serge and cloth, which is used for the clothing of the troops.

ROMPEE, or ROMPU, in heraldry, is applied to ordinaries that are represented as broken; and to chevrons, beads, or the like, whose upper points are cut off.

ROMULUS, the founder and first king of Rome. See *ROME*, n° 14.

RONCIGLIONE, is a town of Italy, in the Ecclesiastic State, and Patrimony of St Peter, in E. Long. 13. N. Lat. 42. 12. It is a small place, but had a pretty good trade, and was one of the richest in the province, while it belonged to the dukes of Parma, which was till 1649, when pope Innocent X. became master of it, and it has ever since continued in the possession of his successors.

RONDELETIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking with those of which the order is doubtful. The corolla is funnel-shaped; the capsule bilocular, inferior, and polyspermous, roundish and crowned.

RONA, one of the Hebrides islands, is reckoned about 20 leagues distant from the north-east point of Nefs in Lewis—about a mile long, and half a mile broad. It has a hill in the west part, and is only visible from Lewis in a fair summer's day. There is a chapel in the island dedicated to St Ronan, fenced with a stone wall round it. This church the natives take care to keep very neat and clean, and sweep it every day. There is an altar in it, on which there lies a big plank of wood about 10 feet long. Every foot has a hole in it, and in every hole is a stone, to which the natives ascribe several virtues; one of them is singular (as they say) for promoting speedy delivery to a woman in travel. The inhabitants are extremely ignorant, and very superstitious. See *Martin's Description*.

RON.

ard.

RONsARD (Peter de) was born at the castle of Poissoniere in Vendomois in 1524. He was descended of a noble family, and was educated at Paris in the college of Navarre. Academical pursuits not suiting his genius, he left college, and became page to the duke of Orleans, who resigned him to James Stuart, king of Scots, married to Magdalene of France. Ronfard continued in Scotland with King James upwards of two years, and afterwards went to France, where he was employed by the duke of Orleans in several negotiations. He accompanied Lazarus de Baif to the diet of Spire. Having from the conversation of this learned man imbibed a passion for the belles-lettres, he studied the Greek language with Baif's son under Dorat. It is reported of Ronfard, that his practice was to study till two o'clock in the morning; and when he went to bed, to awaken Baif, who resumed his place. The muses possessed in his eyes an infinity of charms; and he cultivated them with such success, that he acquired the appellation of the *Prince of the Poets* of his time. Henry II. Francis II. Charles IX. and Henry III. loaded him with favours. Having gained the first prize of the *Jeux Floraux*, they thought the reward promised below the merit of the work, and the reputation of the poet. The city of Toulouse caused a Minerva of massy silver of considerable value to be made and sent to him. This present was accompanied with a decree, declaring him *The French Poet*, by way of distinction. Ronfard afterwards made a present of his Minerva to Henry II. and this monarch appeared as much elated with this mark of the poet's esteem for him, as the poet himself could have been had he received the present from his sovereign. Mary, the beautiful and unfortunate queen of Scots, who was equally sensible of his merit with the Toulonese, gave him a very rich set of table-plate, among which was a vessel in the form of a rose-bush, representing Mount Parnassus, on the top of which was a Pegasus with this inscription:

A Ronfard, l'Apollon de la source des muses.

From the above two anecdotes of him may easily be inferred the reputation in which he was held, and which he continued to keep till Malherbe appeared. His works possess both invention and genius; but his affectation of everywhere thrusting in his learning, and of forming words from the Greek, the Latin, and the different provincialisms of France, has rendered his versification disagreeable and often unintelligible.

*Ronfard, dit Despréaux, par une autre méthode,
Reglant tout, brouilla tout, fit un art à sa mode;
Et toutefois long temps eut un heureux destin;
Mais sa muse, en François parlant Grec et Latin,
Vit dans l'âge suivant, par un retour grotesque,
Tomber de ses grands mots le faste pédante/que.*

He wrote hymns, odes, a poem called the *Franciad*, eclogues, epigrams, sonnets, &c. In his odes he takes bombast for poetical raptures. He wishes to imitate Pindar; and by labouring too much for lofty expressions, he loses himself in a cloud of words. He is obscure and harsh to the last degree; faults which he might easily have avoided by studying the works of Marot, who had before he wrote brought French poetry very near to perfection. "Marot's turn and style

of composition are such (says Bruyere), that he seems to have written after Ronfard: there is hardly any difference, except in a few words, between Marot and us. Ronfard, and the authors his contemporaries, did more disservice than good to style: they checked its course in the advances it was making towards perfection, and had like to have prevented its ever attaining it. It is surprising that Marot, whose works are so natural and easy, did not make Ronfard, who was fired with the strong enthusiasm of poetry, a greater poet than either Ronfard or Marot." But what could be expected from a man who had so little taste, that he called Marot's works 'a dunghill, from which rich grains of gold by industrious working might be drawn?' As a specimen of our author's intolerable and ridiculous affectation of learning, which we have already censured, Boileau cites the following verse of Ronfard to his mistress: *Etes-vous pas ma seule entelechie?* 'are not you my only entelechia?' Now *entelechia* is a word peculiar to the peripatetic philosophy, the sense of which does not appear to have ever been fixed. Hermalaus Barbarus is said to have had recourse to the devil, in order to know the meaning of this new term used by Aristotle; but he did not gain the information he wanted, the devil, probably to conceal his ignorance, speaking in a faint and whispering sort of voice. What could Ronfard's mistress therefore, or even Ronfard himself, know of it; and, what can excuse in a man of real genius the low affectation of using a learned term, because in truth nobody could understand it. He has, however, some pieces not destitute of real merit; and there are perhaps few effusions of the French muse more truly poetical than his *Four Seasons of the Year*, where a most fertile imagination displays all its riches.

Ronfard, though it is doubtful whether he ever was in orders, held several benefices in commendam; and he died at Saint-Cosme-les-Tours, one of these, December 27. 1585, being then 61 years of age. He appeared more ridiculous as a man than as a poet: he was particularly vain. He talked of nothing but his family and his alliances with crowned heads. In his panegyrics, which he addresses to himself without any ceremony, he has the vanity to pretend, that from *Ronfard* is derived the word *Rosignol*, to denote both a musician and a poet together. He was born the year after the defeat of Francis I. before Pavia: "Just as heaven (said he) wished to indemnify France for the losses it had sustained at that place." He blushed not to tell of his intrigues. All the ladies fought after him; but he never said that any of them gave him a denial of their favours. His immoderate indulgence in pleasure, joined to his literary labours, served to hasten his old age. In his 50th year he was weak and valetudinary, and subject to attacks of the gout. He retained his wit, his vivacity, and his readiness at poetic composition, to his last moments. Like all those who aspire after public esteem, he had a great number of admirers and some enemies. Though Melin de Saint-Gelais railed at him continually, Rabelais was the person whom he most dreaded. He took always care to inform himself where that jovial rector of Meudon went, that he might not be found in the same place with him. It is reported, that Voltaire acted a similar part with regard to Peron*, * See *Po.* of whose extemporary sallies and *bon mots* he was much afraid.

Roof.
Roof.

afraid. Ronfard's poems appeared in 1567 at Paris in 6 vols 4to, and in 1604 in 10 vols 12mo.

ROOD, a quantity of land equal to 40 square perches, or the fourth part of an acre.

1
Definition.

ROOF, expresses the covering of a house or building, by which its inhabitants or contents are protected from the injuries of the weather. It is perhaps the essential part of a house, and is frequently used to express the whole. To *come under a person's roof*, is to enjoy his protection and society, to dwell with him. *Tectum* was used in the same sense by the Romans.

2
Strictures on various kinds of roofs.

To be within our walls rather expresses the being in our possession: a roof therefore is not only an essential part of a house, but it even seems to be its characteristic feature. The Greeks, who have perhaps excelled all nations in taste, and who have given the most perfect model of architectonic ordonnance within a certain limit, never erected a building which did not exhibit this part in the distinctest manner; and though they borrowed much of their model from the orientals, as will be evident to any who compares their architecture with the ruins of Persepolis, and of the tombs in the mountains of Sciras, they added that form of roof which their own climate taught them was necessary for sheltering them from the rains. The roofs in Persia and Arabia are flat, but those of Greece are without exception sloping. It seems therefore a gross violation of the true principles of taste in architecture (at least in the regions of Europe), to take away or to hide the roof of a house; and it must be ascribed to that rage for novelty which is so powerful in the minds of the rich. Our ancestors seemed to be of a very different opinion, and turned their attention to the ornamenting of their roofs as much as any other part of a building. They showed them in the most conspicuous manner, running them up to a great height, broke them into a thousand fanciful shapes, and stuck them full of highly dressed windows. We laugh at this, and call it Gothic and clumsy; and our great architects, not to offend any more in this way, conceal the roof altogether by parapets, balustrades, and other contrivances. Our forefathers certainly did offend against the maxims of true taste, when they enriched a part of a house with marks of elegant habitation, which every spectator must know to be a cumbersome garret: but their successors no less offend, who take off the cover of the house altogether, and make it impossible to know whether it is not a mere screen or colonnade we are looking at.

3
Error of Sir Christopher Wren in the roof of St Paul's London.

We cannot help thinking that Sir Christopher Wren erred when he so industriously concealed the roof of St Paul's church in London. The whole of the upper order is a mere screen. Such a quantity of wall would have been intolerably offensive, had he not given it some appearance of habitation by the mock windows or niches. Even in this state it is gloomy, and it is odd, and is a puzzle to every spectator—There should be no puzzle in the design of a building any more than in a discourse. It has been said that the double roof of our great churches which have aisles is an incongruity, looking like a house standing on the top of another house. But there is not the least occasion for such a thought. We know that the aisle is a shed, a cloister. Suppose only that the lower roof or shed is hidden by a balustrade, it then becomes a portico, against which the connoisseur has no objection: yet there is no difference;

for the portico must have a cover, otherwise it is neither a shed, cloister, nor portico, any more than a building without a roof is a house. A house without a visible roof is like a man abroad without his hat; and we may add, that the whim of concealing the chimneys, now so fashionable, changes a house to a barn or store-house. A house should not be a copy of any thing. It has a title to be an original; and a screen-like house and a pillar-like candlestick are similar solecisms in taste.

The architect is anxious to present a fine object, and a very simple outline discusses all his concerns with the roof. He leaves it to the carpenter, whom he frequently puzzles (by his arrangements) with coverings almost impossible to execute. Indeed it is seldom that the idea of a roof is admitted by him into his great compositions; or if he does introduce it, it is from mere affectation, and we may say pedantry. A pediment is frequently stuck up in the middle of a grand front, in a situation where a roof cannot perform its office; for the rain that is supposed to flow down its sides must be received on the top of the level buildings which flank it. This is a manifest incongruity. The tops of dressed windows, trifling porches, and sometimes a projecting portico, are the only situations in which we see the figure of a roof correspond with its office. Having thus lost sight of the principle, it is not surprising that the draughtsman (for he should not be called architect) runs into every whim: and we see pediment within pediment, a round pediment, a hollow pediment, and the greatest of all absurdities, a broken pediment. Nothing could ever reconcile us to the sight of a man with a hat without its crown, because we cannot overlook the use of a hat.

But when one builds a house, ornament alone will not do. We must have a cover; and the enormous expense and other great inconveniences which attend the concealment of this cover by parapets, balustrades, and screens, have obliged architects to consider the pent roof as admissible, and to regulate its form. Any man of sense, not under the influence of prejudice, would be determined in this by its fitness for answering its purpose. A high pitched roof will undoubtedly shoot off the rains and snows better than one of a lower pitch. The wind will not so easily blow the dropping rain in between the slates, nor will it have so much power to strip them off. A high pitched roof will exert a smaller thrust on the walls, both because its strain is less horizontal, and because it will admit of lighter covering. But it is more expensive, because there is more of it. It requires a greater size of timbers to make it equally strong, and it exposes a greater surface to the wind.

There have been great changes in the pitch of roofs: our forefathers made them very high, and we make them very low. It does not, however, appear, that this change has been altogether the effect of principle. In the simple unadorned habitations of private persons, every thing comes to be adjusted by an experience of inconveniences which have resulted from too low pitched roofs; and their pitch will always be nearly such as suits the climate and covering. Our architects, however, go to work on different principles. Their professed aim is to make a beautiful object. The sources of the pleasures arising from what we call *taste* are so various, so complicated, and even so whimsical, that it

is almost in vain to look for principle in the rules adopted by our professed architects. We cannot help thinking, that much of their practice results from a *pedantic* veneration for the beautiful productions of Grecian architecture. Such architects as have written on the principles of the art in respect of proportions, or what they call the *ORDONNANCE*, are very much puzzled to make a chain of reasoning; and the most that they have made of the Greek architecture is, that it exhibits a nice adjustment of strength and strain. But when we consider the extent of this adjustment, we find that it is wonderfully limited. The whole of it consists of a basement, a column, and an entablature; and the entablature, it is true, exhibits something of a connection with the framework and roof of a wooden building; and we believe that it really originated from this in the hands of the orientals, from whom the Greeks certainly borrowed their forms and their combinations. We could easily show in the ruins of Persepolis, and among the tombs in the mountains (which were long prior to the Greek architecture), the fluted column, the base, the Ionic and Corinthian capital, and the Doric arrangement of lintels, beams, and rafters, all derived from unquestionable principle. The only addition made by the Greeks was the pent roof; and the changes made by them in the subordinate forms of things are such as we should expect from their exquisite judgment of beauty.

in London of two orders, and he coupled his columns; and still the lintels which form the architrave are of such length that they could carry no additional weight, and he was obliged to truss them behind. Had he made but one order, the architrave could not have carried its own weight. It is impossible to execute a Doric entablature of this size in brick. It is attempted in a very noble front, the Academy of Arts in St Petersburg. But the architect was obliged to make the mutules and other projecting members of the cornice of granite, and many of them broke down by their own weight.

Here is surely an error in principle. Since stone is the chief material of our buildings, ought not the members of ornamented architecture to be refinements on the essential and unaffected parts of a simple stone-building. There is almost as much propriety in the architecture of India, where a dome is made in imitation of a lily or other flower inverted, as in the Greek imitation of a wooden building. The principles of masonry, and not of carpentry, should be seen in our architecture, if we would have it according to the rules of just taste. Now we affirm that this is the characteristic feature of what is called the Gothic architecture. In this no dependence is had on the transverse strength of stone. No lintels are to be seen; no extravagant projections. Every stone is pressed to its neighbours, and none is exposed to a transverse strain. The Greeks were enabled to execute their colossal buildings only by using immense blocks of the hardest materials. The Norman mason could raise a building to the skies without using a stone which a labourer could not carry to the top on his back. Their architects studied the principles of equilibrium; and having attained a wonderful knowledge of it, they indulged themselves in exhibiting remarkable instances. We call this false taste, and say that the appearance of insecurity is the greatest fault. But this is owing to our habits: our thoughts may be said to run in a wooden train, and certain simple maxims of carpentry are familiar to our imagination; and in the careful adherence to these consists the beauty and symmetry of the Greek architecture. Had we been as much habituated to the equilibrium of pressure, this apparent insecurity would not have met our eye: we would have perceived the strength, and we should have relished the ingenuity.

The Gothic architecture is perhaps intitled to the name of rational architecture, and its beauty is founded on the characteristic distinction of our species. It deserves cultivation: not the pitiful, servile, and unskilled copying of the monuments; this will produce incongruities and absurdities equal to any that have crept into the Greek architecture: but let us examine with attention the nice disposition of the groins and spaundrels; let us study the tracery and knots, not as ornaments, but as useful members; let us observe how they have made their walls like honey-combs, and admire their ingenuity as we pretend to admire the instinct infused by the great architect into the bee. All this cannot be understood without mechanical knowledge; a thing which few of our professional architects have any share of. Thus would architectonic taste be a mark of skill; and the person who presents the design of a building would know how to excite it, without committing it entirely to the mason and carpenter.

These observations are not a digression from our subject.

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Roof. ject. The same principles of mutual pressure and equilibrium have a place in roofs and many wooden edifices; and if they had been as much studied as the Normans and Saracens seem to have studied such of them as were applicable to their purposes, we might have produced wooden buildings as far superior to what we are familiarly acquainted with, as the bold and wonderful churches still remaining in Europe are superior to the timid productions of our stone architecture. The ceintres used in building the bridge of Orleans and the corn-market of Paris, are late instances of what may be done in this way. The last mentioned is a dome of 200 feet diameter, built of fir planks; and there is not a piece of timber in it more than nine feet long, a foot broad, and three inches thick.

11
The Norman architects often roofed with stone.

The Norman architects frequently roofed with stone. Their wooden roofs were in general very simple, and their professed aim was to dispense with them altogether. Fond of their own science, they copied nothing from a wooden building, and ran into a similar fault with the ancient Greeks. The parts of their buildings which were necessarily of timber were made to imitate stone-buildings; and Gothic ornament consists in cramming every thing full of arches and spandrels. Nothing else is to be seen in their timber works, nay even in their sculpture. Look at any of the maces or sceptres still to be found about the old cathedrals; they are silver steeples.

12
Effects of the rivalry between the masons and carpenters of ancient times.

But there appears to have been a rivalry in old times between the masons and the carpenters. Many of the baronial halls are of prodigious width, and are roofed with timber: and the carpenters appeared to have borrowed much knowledge from the masons of those times, and their wide roofs are frequently constructed with great ingenuity. Their aim, like the masons, was to throw a roof over a very wide building without employing great logs of timber. We have seen roofs 60 feet wide, without having a piece of timber in it above 10 feet long and 4 inches square. The Parliament House and Tron-Church of Edinburgh, the great hall of Tarnaway castle near Elgin, are specimens of those roofs. They are very numerous on the continent. Indeed Britain retains few monuments of private magnificence. Aristocratic state never was so great with us; and the rancour of our civil wars gave most of the performances of the carpenter to the flames. Westminster-hall exhibits a specimen of the false taste of the Norman roofs. It contains the essential parts indeed, very properly disposed; but they are hidden, or intentionally covered, with what is conceived to be ornamental; and this is an imitation of stone arches, crammed in between slender pillars which hang down from the principal frames, trusses, or rafters. In a pure Norman roof, such as Tarnaway hall, the essential parts are exhibited as things understood, and therefore relished. They are refined and ornamented; and it is here that the inferior kind of taste or the want of it may appear. And here we do not mean to defend all the whims of our ancestors; but we assert that it is no more necessary to consider the members of a roof as things to be concealed like a garret or privy, than the members of a ceiling, which form the most beautiful part of the Greek architecture. Should it be said that a roof is only a thing to keep off the rain, it may be answered,

that a ceiling is only to keep off the dust, or the floor to be trodden underfoot, and that we should have neither copartments in the one nor inlaid work or carpets on the other. The structure of a roof may therefore be exhibited with propriety, and made an ornamental feature. This has been done even in Italy. The church of St Maria Maggiore in Rome and several others are specimens: but it must be acknowledged, that the forms of the principal frames of these roofs, which resemble those of our modern buildings, are very unfit for agreeable ornament. As we have already observed, our imaginations have not been made sufficiently familiar with the principles, and we are rather alarmed than pleased with the appearance of the immense logs of timber which form the couples of these roofs, and hang over our heads with every appearance of weight and danger. It is quite otherwise with the ingenious roofs of the German and Norman architects. Slender timbers, interlaced with great symmetry, and thrown by necessity into figures which are naturally pretty, form altogether an object which no carpenter can view without pleasure. And why should the gentleman refuse himself the same pleasure of beholding scientific ingenuity?

The roof is in fact the part of the building which requires the greatest degree of skill, and where science will be of more service than in any other part. The architect seldom knows much of the matter, and leaves the task to the carpenter. The carpenter considers the framing of a great roof as the touchstone of his art; and nothing indeed tends so much to show his judgment and his fertility of resource.

It must therefore be very acceptable to the artist to have a clear view of the principles by which this difficult problem may be solved in the best manner, so that the roof may have all the strength and security that can be wished for, without an extravagant expence of timber and iron. We have said that mechanical science can give great assistance in this matter. We may add that the framing of carpentry, whether for roofs, floors, or any other purpose, affords one of the most elegant and most satisfactory applications which can be made of mechanical science to the arts of common life. Unfortunately the practical artist is seldom possessed even of the small portion of science which would almost insure his practice from all risk of failure; and even our most experienced carpenters have seldom any more knowledge than what arises from their experience and natural sagacity. The most approved author in our language is Price in his *British Carpenter*. Mathurin Jousse is in like manner the author most in repute in France; and the publications of both these authors are void of every appearance of principle. It is not uncommon to see the works of carpenters of the greatest reputation tumble down, in consequence of mistakes from which the most elementary knowledge would have saved them.

We shall attempt, in this article, to give an account of the leading principles of this art in a manner so familiar and palpable, that any person who knows the common properties of the lever, and the composition of motion, shall so far understand them as to be able, on every occasion, so to dispose his materials, with respect to the strains to which they are to be exposed, that he shall always know the effective strain on every piece, and shall,

Roof. shall, in most cases, be able to make the disposition such as to derive the greatest possible advantage from the materials which he employs.

16 It is evident that the whole must depend on the principles which regulate the strength of the materials, relative to the manner in which this strength is exerted, and the manner in which the strain is laid on the piece of matter. With respect to the first, this is not the proper place for considering it, and we must refer the reader to the article *STRENGTH of Materials in Mechanics*. We shall just borrow from that article two or three propositions suited to our purpose.

The force with which the materials of our edifices, roofs, floors, machines, and framings of every kind, resist being broken or crushed, or pulled asunder, is, immediately or ultimately, the cohesion of their particles. When a weight hangs by a rope, it tends either immediately to break all the fibres, overcoming the cohesion among the particles of each, or it tends to pull one parcel of them from among the rest, with which they are joined. This union of the fibres is brought about by some kind of gluten, or by twisting, which causes them to bind each other so hard that any one will break rather than come out, so much is it withheld by friction. The ultimate resistance is therefore the cohesion of the fibre; the force or strength of all fibrous materials, such as timber, is exerted in much the same manner. The fibres are either broken or pulled out from among the rest. Metals, stone, glass, and the like, resist being pulled asunder by the simple cohesion of their parts.

The force which is necessary for breaking a rope or wire is a proper measure of its strength. In like manner, the force necessary for tearing directly asunder any rod of wood or metal, breaking all its fibres, or tearing them from among each other, is a proper measure of the united strength of all these fibres. And it is the simplest strain to which they can be exposed, being just equal to the sum of the forces necessary for breaking or disengaging each fibre. And, if the body is not of a fibrous structure, which is the case with metals, stones, glass, and many other substances, this force is still equal to the simple sum of the cohesive forces of each particle which is separated by the fracture. Let us distinguish this mode of exertion of the cohesion of the body by the name of its **ABSOLUTE STRENGTH**.

When solid bodies are, on the contrary, exposed to great compression, they can resist only to a certain degree. A piece of clay or lead will be squeezed out; a piece of freestone will be crushed to powder; a beam of wood will be crippled, swelling out in the middle, and its fibres lose their mutual cohesion, after which it is easily crushed by the load. A notion may be formed of the manner in which these strains are resisted by conceiving a cylindrical pipe filled with small shot, well shaken together, so that each sphericle is lying in the closest manner possible, that is, in contact with six others in the same vertical plane (this being the position in which the shot will take the least room). Thus each touches the rest in six points: Now suppose them all united, in these six points only, by some cement. This assemblage will stick together and form a cylindrical pillar, which may be taken out of its mould. Sup-

pose this pillar standing upright, and loaded above. The supports arising from the cement act obliquely, and the load tends either to force them asunder laterally, or to make them slide on each other: either of these things happening, the whole is crushed to pieces. The resistance of fibrous materials to such a strain is a little more intricate, but may be explained in a way very similar.

A piece of matter of any kind may also be destroyed by wrenching or twisting it. We can easily form a notion of its resistance to this kind of strain by considering what would happen to the cylinder of small shot if treated in this way.

And lastly, a beam, or a bar of metal, or a piece of stone or other matter, may be broken transversely. This will happen to a rafter or joist supported at the ends when overloaded; or to a beam having one end stuck fast in a wall and a load laid on its projecting part. This is the strain to which materials are most commonly exposed in roofs; and, unfortunately, it is the strain which they are the least able to bear; or rather it is the manner of application which causes an external force to excite the greatest possible immediate strain on the particles. It is against this that the carpenter must chiefly guard, avoiding it when in his power, and, in every case, diminishing it as much as possible. It is necessary to give the reader a clear notion of the great weakness of materials in relation to this transverse strain. But we shall do nothing more, referring him to the articles **STRAIN, STRESS, STRENGTH**.

Let ACBD (fig. 1.) represent the side of a beam projecting horizontally from a wall in which it is firmly fixed, and let it be loaded with a weight W appended to its extremity. This tends to break it; and the least reflection will convince any person that if the beam is equally strong throughout, it will break in the line CD, even with the surface of the wall. It will open at D, while C will serve as a sort of joint, round which it will turn. The cross section through the line CD is, for this reason, called the *section of fracture*, and the horizontal line, drawn through C on its under surface, is called the *axis of fracture*. The fracture is made by tearing asunder the fibres, such as DE or FG. Let us suppose a real joint at C, and that the beam is really sawed through along CD, and that in place of its natural fibres threads are substituted all over the section of fracture. The weight now tends to break these threads; and it is our business to find the force necessary for this purpose.

It is evident that DCA may be considered as a bent lever, of which C is the fulcrum. If f be the force which will just balance the cohesion of a thread when hung on it so that the smallest addition will break it, we may find the weight which will be sufficient for this purpose when hung on at A, by saying, $AC : CD = f : \phi$, and ϕ will be the weight which will just break the thread, by hanging ϕ by the point A. This gives
$$us \phi = f \times \frac{CD}{CA}.$$
 If the weight be hung on at a , the force just sufficient for breaking the same thread will be
$$= f \frac{CD}{Ca}.$$
 In like manner the force ϕ , which must be hung on at A in order to break an equally strong or an

Roof.

equally resisting fibre at F, must be $= f \times \frac{CF}{CA}$. And so on of all the rest.

If we suppose all the fibres to exert equal resistances at the instant of fracture, we know, from the simplest elements of mechanics, that the resistance of all the particles in the line CD, each acting equally in its own place, is the same as if all the individual resistances were united in the middle point *g*. Now this total resistance is the resistance or strength *f* of each particle, multiplied by the number of particles. This number may be expressed by the line CD, because we have no reason to suppose that they are at unequal distances. Therefore, in comparing different sections together, the number of particles in each are as the sections themselves. Therefore DC may represent the number of particles in the line DC'. Let us call this line the depth of the beam, and express it by the symbol *d*. And since we are at present treating of roofs whose rafters and other parts are commonly of uniform breadth, let us call AH or BI the breadth of the beam, and express it by *b*, and let CA be called its length, *l*. We may now express the strength of the whole line CD by $f \times d$, and we may suppose it all concentrated in the middle point *g*. Its mechanical energy, therefore, by which it resists the energy of the weight *w*, applied at the distance *l*, is $f \cdot CD \cdot Cg$, while the momentum of *w* is $w \cdot CA$. We must therefore have $f \cdot CD \cdot Cg = w \cdot CA$, or $fd \cdot \frac{1}{2}d = w \cdot l$, and $fd : w = l : \frac{1}{2}d$, or $fd : w = 2l : d$. That is, twice the length of the beam is to its depth as the absolute strength of one of its vertical planes to its relative strength, or its power of resisting this transverse fracture.

It is evident, that what has been now demonstrated of the resistance exerted in the line CD, is equally true of every line parallel to CD in the thickness or breadth of the beam. The absolute strength of the whole section of fracture is properly represented by $f \cdot d \cdot b$, and we still have $2l : d = fdb : w$; or twice the length of the beam is to its depth as the absolute strength to the relative strength. Suppose the beam 12 feet long and one foot deep; then whatever is its absolute strength, the 24th part of this will break it if hung at its extremity.

But even this is too favourable a statement; all the fibres are supposed to meet alike in the instant of fracture. But this is not true. At the instant that the fibre at D breaks, it is stretched to the utmost, and is exerting its whole force. But at this instant the fibre at *g* is not so much stretched, and it is not then exerting its utmost force. If we suppose the extension of the fibres to be as their distance from C, and the actual exertion of each to be as their extensions, it may easily be shown (see STRENGTH and STRAIN), that the whole resistance is the same as if the full force of all the fibres were united at a point *r* distant from C by one third of CD. In this case we must say, that the absolute strength is to the relative strength as three times the length to the depth; so that the beam is weaker than by the former statement in the proportion of two to three.

Even this is more strength than experiment justifies; and we can see an evident reason for it. When the beam is strained, not only are the upper fibres stretched, but the lower fibres are compressed. This is

very distinctly seen, if we attempt to break a piece of cork cut into the shape of a beam: this being the case, C is not the centre of fracture. There is some point *c* which lies between the fibres which are stretched and those that are compressed. This fibre is neither stretched nor squeezed; and this point is the real centre of fracture: and the lever by which a fibre D resists, is not DC, but a shorter one D*c*; and the energy of the whole resistances must be less than by the second statement. Till we know the proportion between the dilatibility and compressibility of the parts, and the relation between the dilatations of the fibres and the resistances which they exert in this state of dilatation, we cannot positively say where the point *c* is situated, nor what is the sum of the actual resistances, or the point where their action may be supposed concentrated. The firmer woods, such as oak and chefnut, may be supposed to be but slightly compressible; we know that willow and other soft woods are very compressible. These last must therefore be weaker: for it is evident, that the fibres which are in a state of compression do not resist the fracture. It is well known, that a beam of willow may be cut through from C to *g* without weakening it in the least, if the cut be filled up by a wedge of hard wood stuck in.

We can only say, that very sound oak and red fir have the centre of effort so situated, that the absolute strength is to the relative strength in a proportion not less than that of three and a half times the length of the beam to its depth. A square inch of sound oak will carry about 8000 pounds. If this bar be firmly fixed in a wall, and project 12 inches, and be loaded at the extremity with 200 pounds, it will be broken. It will just bear 190, its relative strength being $\frac{1}{12}$ of its absolute strength; and this is the case only with the finest pieces, so placed that their annual plates or layers are in a vertical position. A larger log is not so strong transversely, because its plates lie in various directions round the heart.

These observations are enough to give us a distinct notion of the vast diminution of the strength of timber when the strain is across it; and we see the justice of the maxim which we inculcated, that the carpenter, in framing roofs, should avoid as much as possible the exposing his timbers to transverse strains. But this cannot be avoided in all cases. Nay, the ultimate strain, arising from the very nature of a roof, is transverse. The rafters must carry their own weight, and this tends to break them across; an oak beam a foot deep will not carry its own weight if it project more than 60 feet. Besides this, the rafters must carry the lead, tiling, or slates. We must therefore consider this transverse strain a little more particularly, so as to know what strain will be laid on any part by an unavoidable load, laid on either at that part or at any other.

We have hitherto supposed, that the beam had one of its ends fixed in a wall, and that it was loaded at the other end. This is not an usual arrangement, and was taken merely as affording a simple application of the mechanical principles. It is much more usual to have in the beam supported at the ends, and loaded in the middle. Let the beam FE*GH* (fig. 2.) rest on the props E and G, and be loaded at its middle point C with a weight W. It is required to determine the strain at the section CD? It is plain that the beam will receive

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Roof. receive the same support, and suffer the same strain, if, instead of the blocks E and G, we substitute the ropes E f e, G b g, going over the pulleys f and g, and loaded with proper weights e and g. The weight e is equal to the support given by the block E; and g is equal to the support given by G. The sum of e and g is equal to W; and, on whatever point W is hung, the weights e and g are to W in the proportion of DG and DE to GE. Now, in this state of things, it appears that the strain on the section CD arises immediately from the upward action of the ropes F f and H h, or the upward pressures of the blocks E and G; and that the office of the weight W is to oblige the beam to oppose this strain. Things are in the same state in respect of strain as if a block were substituted at D for the weight W, and the weights e and g were hung on at E and G; only the directions will be opposite. The beam tends to break in the section CD, because the ropes pull it upwards at E and G, while a weight W holds it down at C. It tends to open at D, and C becomes the centre of fracture. The strain therefore is the same as if the half ED were fixed in the wall, and a weight equal to g, that is, to the half of W, were hung on at G.

Hence we conclude, that a beam supported at both ends, but not fixed there, and loaded in the middle, will carry twice as much weight as it can carry at its extremity, when the other extremity is fast in a wall.

The strain occasioned at any point L by a weight W, hung on at any other point D, is $= W \times \frac{DE}{EG} \times LG$. For EG is to ED as W to the pressure occasioned at G. This would be balanced by some weight g acting over the pulley b; and this tends to break the beam at L, by acting on the lever GL. The pressure at G is $W \times \frac{DE}{EG}$, and therefore the strain at L is $W \times \frac{DE}{EG} \times LG$.

In like manner, the strain occasioned at the point D by the weight W hung on there, is $W \times \frac{DE}{EG} \times DG$; which is therefore equal to $\frac{1}{2} W$, when D is the middle point.

Hence we see, that the general strain on the beam arising from one weight, is proportionable to the rectangle of the parts of the beam, (for $\frac{W \cdot DE \cdot DG}{EG}$ is as DE.DG), and is greatest when the load is laid on the middle of the beam.

We also see, that the strain at L, by a load at D, is equal to the strain at D by the same load at L. And the strain at L, from a load at D, is to the strain by the same load at L as DE to LE. These are all very obvious corollaries; and they sufficiently inform us concerning the strains which are produced on any part of the timber by a load laid on any other part.

If we now suppose the beam to be fixed at the two ends, that is, firmly framed, or held down by blocks at I and K, placed beyond E and G, or framed into posts, it will carry twice as much as when its ends were free. For suppose it sawn through at CD; the weight W hung on there will be just sufficient to break it at E and G. Now restore the connection of the sec-

tion CD, it will require another weight W to break it there at the same time.

Therefore, when a rafter, or any piece of timber, is firmly connected with three fixed points G, E, I, it will bear a greater load between any two of them than if its connection with the remote point were removed; and if it be fastened in four points, G, E, I, K, it will be twice as strong in the middle part as without the two remote connections.

One is apt to expect from this that the joist of a floor will be much strengthened by being firmly built in the wall. It is a little strengthened; but the hold which can thus be given it is much too short to be of any sensible service; and it tends greatly to shatter the wall, because, when it is bent down by a load, it forces up the wall with the momentum of a long lever. Judicious builders therefore take care not to bind the joists tight in the wall. But when the joists of adjoining rooms lie in the same direction, it is a great advantage to make them of one piece. They are then twice as strong as when made in two lengths.

It is easy to deduce from these premises the strain on any point which arises from the weight of the beam itself, or from any load which is uniformly diffused over the whole or any part. We may always consider the whole of the weight which is thus uniformly diffused over any part as united in the middle point of that part; and if the load is not uniformly diffused, we may still suppose it united at its centre of gravity. Thus, to know the strain at L arising from the weight of the whole beam, we may suppose the whole weight accumulated in its middle point D. Also the strain at L, arising from the weight of the part ED, is the same as if this weight were accumulated in the middle point d of ED; and it is the same as if half the weight of ED were hung on at D. For the real strain at L is the upward pressure at G, acting by the lever GL. Now call the weight of the part DE e; this upward pressure will be $\frac{e \times dE}{EG}$, or $\frac{\frac{1}{2}e \times DE}{EG}$.

Therefore the strain on the middle of a beam, arising from its own weight, or from any uniform load, is the weight of the beam or its load $\times \frac{ED}{EG} \times DG$; that is, half the weight of the beam or load multiplied or acting by the lever DG; for $\frac{ED}{EG}$ is $\frac{1}{2}$.

Also the strain at L, arising from the weight of the beam, or the uniform load, is $\frac{1}{4}$ the weight of the beam or load acting by the lever LG. It is therefore proportional to LG, and is greatest of all at D. Therefore a beam of uniform strength throughout, uniformly loaded, will break in the middle.

It is of importance to know the relation between the strains arising from the weights of the beams, or from any uniformly diffused load, and the relative strength. We have already seen, that the relative strength is $\int \frac{db \cdot d}{m \cdot l}$, where m is a number to be discovered by experiment for every different species of materials. Leaving out every circumstance but what depends on the dimensions of the beam, viz. d, b, and l, we see that the relative strength is in the proportion of $\frac{d^2 b}{l}$, that

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that is, as the breadth and the square of the depth directly and the length inversely.

Now, to consider first the strain arising from the weight of the beam itself, it is evident that this weight increases in the same proportion with the depth, the breadth, and the length of the beam. Therefore its power of resisting this strain must be as its depth directly, and the square of its length inversely. To consider this in a more popular manner, it is plain that the increase of breadth makes no change in the power of resisting the actual strain, because the load and the absolute strength increase in the same proportion with the breadth. But by increasing the depth, we increase the resisting section in the same proportion, and therefore the number of resisting fibres and the absolute strength: but we also increase the weight in the same proportion. This makes a compensation, and the relative strength is yet the same. But by increasing the depth, we have not only increased the absolute strength, but also its mechanical energy: For the resistance to fracture is the same as if the full strength of each fibre was exerted at the point which we called the centre of effort; and we showed, that the distance of this from the underside of the beam was a certain portion (a half, a third, a fourth, &c.) of the whole depth of the beam. This distance is the arm of the lever by which the cohesion of the wood may be supposed to act. Therefore this arm of the lever, and consequently the energy of the resistance, increases in the proportion of the depth of the beam, and this remains uncompensated by any increase of the strain. On the whole, therefore, the power of the beam to sustain its own weight increases in the proportion of its depth. But, on the other hand, the power of withstanding a given strain applied at its extremity, or to any aliquot part of its length, is diminished as the length increases, or is inversely as the length; and the strain arising from the weight of the beam also increases as the length. Therefore the power of resisting the strain actually exerted on it by the weight of the beam is inversely as the square of the length. On the whole, therefore, the power of a beam to carry its own weight, varies in the proportion of its depth directly and the square of its length inversely.

As this strain is frequently a considerable part of the whole, it is proper to consider it apart, and then to reckon only on what remains for the support of any extraneous load.

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Power of a
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In the next place, the power of a beam to carry any load which is uniformly diffused over its length, must be inversely as the square of the length: for the power of withstanding any strain applied to an aliquot part of the length (which is the case here, because the load may be conceived as accumulated at its centre of gravity, the middle point of the beam) is inversely as the length; and the actual strain is as the length, and therefore its momentum is as the square of the length. Therefore the power of a beam to carry a weight uniformly diffused over it, is inversely as the square of the length. *N. B.* It is here understood, that the uniform load is of some determined quantity for every foot of the length, so that a beam of double length carries a double load.

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Effect when
the action
of the load
oblique.

We have hitherto supposed that the forces which tend to break a beam transversely, are acting in a direc-

tion perpendicular to the beam. This is always the case in level floors loaded in any manner; but in roofs, the action of the load tending to break the rafters is oblique, because gravity always acts in vertical lines. It may also frequently happen, that a beam is strained by a force acting obliquely. This modification of the strain is easily discussed. Suppose that the external force, which is measured by the weight W in fig. 1. acts in the direction Aw instead of AW . Draw $C\hat{a}$ perpendicular to Aw . Then the momentum of this external force is not to be measured by $W \times AC$, but by $W \times \hat{a}C$. The strain therefore by which the fibres in the section of fracture DC are torn asunder, is diminished in the proportion of CA to $C\hat{a}$, that is, in the proportion of radius to the sine of the angle $CA\hat{a}$, which the beam makes with the direction of the external force.

To apply this to our purpose in the most familiar manner, let AB (fig. 3.) be an oblique rafter of a building, loaded with a weight W suspended to any point C , and thereby occasioning a strain in some part D . We have already seen, that the immediate cause of the strain on D is the reaction of the support which is given to the point B . The rafter may at present be considered as a lever, supported at A , and pulled down by the line CW . This occasions a pressure on B , and the support acts in the opposite direction to the action of the lever, that is, in the direction $B\hat{t}$, perpendicular to BA . This tends to break the beam in every part.

The pressure exerted at B is $\frac{W \times AE}{AB}$, AE being a horizontal line. Therefore the strain at D will be $\frac{W \times AE}{AB} \times BD$. Had the beam been lying horizontally, the strain at D , from the weight W suspended at C , would have been $\frac{W \times AC}{AB} \times BD$. It is therefore diminished in the proportion of AC to AE , that is, in the proportion of radius to the cosine of the elevation, or in the proportion of the secant of elevation to the radius.

It is evident, that this law of diminution of the strain is the same whether the strain arises from a load on any part of the rafter, or from the weight of the rafter itself, or from any load uniformly diffused over its length, provided only that these loads act in vertical lines.

We can now compare the strength of roofs which have different elevations. Supposing the width of the building to be given, and that the weight of a square yard of covering is also given. Then, because the load on the rafter will increase in the same proportion with its length, the load on the slant-side BA of the roof will be to the load of a similar covering on the half AF of the flat roof, of the same width, as AB to AF . But the transverse action of any load on AB , by which it tends to break it, is to that of the same load on AF as AF to AB . The transverse strain therefore is the same on both, the increase of real load on AB being compensated by the obliquity of its action. But the strengths of beams to resist equal strains, applied to similar points, or uniformly diffused over them, are inversely as their lengths, because the momentum or energy of the strain is proportional to the length. Therefore

fore the power of AB to withstand the strain to which it is really exposed, is to the power of AF to resist its strain as AF to AB. If, therefore, a rafter AG of a certain scantling is just able to carry the roofing laid on it, a rafter AB of the same scantling, but more elevated, will be too weak in the proportion of AG to AB. Therefore steeper roofs require stouter rafters, in order that they may be equally able to carry a roofing of equal weight per square yard. To be equally strong, they must be made broader, or placed nearer to each other, in the proportion of their greater length, or they must be made deeper in the subduplicate proportion of their length. The following easy construction will enable the artist not familiar with computation to proportion the depth of the rafter to the slope of the roof.

Let the horizontal line af (fig. 4.) be the proper depth of a beam whose length is half the width of the building; that is, such as would make it fit for carrying the intended tiling laid on a flat roof. Draw the vertical line fb , and the line ab having the elevation of the rafter; make ag equal to af , and describe the semicircle bdg ; draw ad perpendicular to ab , ad is the required depth. The demonstration is evident.

We have now treated in sufficient detail what relates to the chief strain on the component parts of a roof, namely, what tends to break them transversely; and we have enlarged more on the subject than what the present occasion indispensably required, because the propositions which we have demonstrated are equally applicable to all framings of carpentry, and are even of greater moment in many cases, particularly in the construction of machines. These consist of levers in various forms, which are strained transversely; and similar strains frequently occur in many of the supporting and connecting parts. We shall give in the article **TIMBER** an account of the experiments which have been made by different naturalists, in order to ascertain the absolute strength of some of the materials which are most generally framed together in buildings and engines. The house-carpenter will draw from them absolute numbers, which he can apply to his particular purposes by means of the propositions which we have now established.

We proceed, in the next place, to consider the other strains to which the parts of roofs are exposed, in consequence of the support which they mutually give each other, and the pressures (or *thrusts* as they are called in the language of the house-carpenter) which they exert on each other, and on the walls or piers of the building.

Let a beam or piece of timber AB (fig. 5.) be suspended by two lines AC, BD; or let it be supported by two props AE, BF, which are perfectly moveable round their remote extremities E, F, or let it rest on the two polished plains KAH, LBM. Moreover, let G be the centre of gravity of the beam, and let GN be a line through the centre of gravity perpendicular to the horizon. The beam will not be in equilibrio unless the vertical line GN either passes through P, the point in which the directions of the two lines AC, BD, or the directions of the two props EA, FB, or the perpendiculars to the two planes KAH, LBM intersect each other, or is parallel to these directions. For the supports given by the lines or props are unquestionably exerted in the direction of their lengths; and it is as well

known in mechanics that the supports given by planes are exerted in a direction perpendicular to those planes in the points of contact; and we know that the weight of the beam acts in the same manner as if it were all accumulated in its centre of gravity G, and that it acts in the direction GN perpendicular to the horizon. Moreover, when a body is in equilibrio between three forces, they are acting in one plane, and their directions are either parallel or they pass through one point.

The support given to the beam is therefore the same as if it were suspended by two lines which are attached to the single point P. We may also infer, that the points of suspension C, D, the points of support E, F, the points of contact A, B, and the centre of gravity G, are all in one vertical plane.

When this position of the beam is disturbed by any external force, there must either be a motion of the points A and B round the centres of suspension C and D, or of the props round these points of support E and F, or a sliding of the ends of the beam along the polished planes GH and IK; and in consequence of these motions the centre of gravity G will go out of its place; and the vertical line GN will no longer pass through the point where the directions of the supports intersect each other. If the centre of gravity rises by this motion, the body will have a tendency to recover its former position, and it will require force to keep it away from it. In this case the equilibrium may be said to be *stable*, or the body to have *stability*. But if the centre of gravity descends when the body is moved from the position of equilibrium, it will tend to move still farther; and so far will it be from recovering its former position, that it will now fall. This equilibrium may be called a *tottering equilibrium*. These accidents depend on the situations of the points A, B, C, D, E, F; and they may be determined by considering the subject geometrically. It does not much interest us at present; it is rarely that the equilibrium of suspension is tottering, or that of props is stable. It is evident, that if the beam were suspended by lines from the point P, it would have stability, for it would swing like a pendulum round P, and therefore would always tend towards the position of equilibrium. The intersection of the lines of support would still be at P, and the vertical line drawn through the centre of gravity, when in any other situation, would be on that side of P towards which this centre has been moved. Therefore, by the rules of pendulous bodies, it tends to come back. This would be more remarkably the case if the points of suspension C and D be on the same side of the point P with the points of attachment A and B; for in this case the new point of intersection of the lines of support would shift to the opposite side, and be still farther from the vertical line through the new position of the centre of gravity. But if the points of suspension and of attachment are on opposite sides of P, the new point of intersection may shift to the same side with the centre of gravity, and lie beyond the vertical line; in this case the equilibrium is tottering. It is easy to perceive, too, that if the equilibrium of suspension from the points C and D be stable, the equilibrium on the props AE and BF must be tottering. It is not necessary for our present purpose to engage more particularly in this discussion.

It is plain that, with respect to the mere momentary equilibrium, there is no difference in the support by threads,

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threads, or props, or planes, and we may substitute the one for the other. We shall find this substitution extremely useful, because we easily conceive distinct notions of the support of a body by strings.

Observe farther, that if the whole figure be inverted, and strings be substituted for props, and props for strings, the equilibrium will still obtain: for by comparing fig. 5. with fig. 6. we see that the vertical line through the centre of gravity will pass through the intersection of the two strings or props; and this is all that is necessary for the equilibrium: only it must be observed in the substitution of props for threads, and of threads for props, that if it be done without inverting the whole figure, a stable equilibrium becomes a tottering one, and *vice versa*.

Examples.

This is a most useful proposition, especially to the unlettered artisan, and enables him to make a practical use of problems which the greatest mechanical geniuses have found no easy task to solve. An instance will show the extent and utility of it. Suppose it were required to make a manard or kirb roof whose width is AB (fig. 7.), and consisting of the four equal rafters AC, CD, DE, EB . There can be no doubt but that its best form is that which will put all the parts in equilibrio, so that no ties or stays may be necessary for opposing the unbalanced thrust of any part of it. Make a chain $acdeb$ (fig. 8.) of four equal pieces, loosely connected by pin-joints, round which the parts are perfectly moveable. Suspend this from two pins a, b , fixed in a horizontal line. This chain or festoon will arrange itself in such a form that its parts are in equilibrio. Then we know that if the figure be inverted, it will compose the frame or truss of a kirb-roof $aydeb$, which is also in equilibrio, the thrusts of the pieces balancing each other in the same manner that the mutual pulls of the hanging festoon $acdeb$ did. If the proportion of the height df to the width ab is not such as pleases, let the pins a, b be placed nearer or more distant, till a proportion between the width and height is obtained which pleases, and then make the figure $ACDEB$ fig. 7. similar to it. It is evident that this proposition will apply in the same manner to the determination of the form of an arch of a bridge; but this is not a proper place for a farther discussion.

We are now able to compute all the thrusts and other pressures which are exerted by the parts of a roof on each other and on the walls. Let AB (fig. 9.) be a beam standing anyhow obliquely, and G its centre of gravity. Let us suppose that the ends of it are supported in any directions AC, BD , by strings, props, or planes. Let these directions meet in the point P of the vertical line PG passing through its centre of gravity. Through G draw lines Ga, Gb parallel to PB, PA . Then

The weight of the beam

The pressure or the

The pressure at B

are proportional to $\begin{cases} PG \\ Pa \\ Pb \end{cases}$

For when a body is in equilibrio between three forces, these forces are proportional to the sides of a triangle which have their directions.

In like manner, if Ag be drawn parallel to Pb , we shall have

Weight of the beam

Thrust on A

Thrust on B

proportional to $\left\{ \begin{array}{l} P_g \\ PA \\ B_g \end{array} \right.$

Or, drawing $B\gamma$ parallel to Pa

Weight of beam

Thrust at A

Thrust at B

$$\left. \begin{array}{l} \text{P} \gamma \\ \text{B} \gamma \\ \text{PB} \end{array} \right\} \text{ are proportional to } \left\{ \begin{array}{l} \text{P} \gamma \\ \text{B} \gamma \\ \text{PB} \end{array} \right.$$

It cannot be disputed that, if strength alone be considered, the proper form of a roof is that which puts the whole in equilibrio, so that it would remain in that shape although all the joints were perfectly loose or flexible. If it has any other shape, additional ties or braces are necessary for preserving it, and the parts are unnecessarily strained. When this equilibrium is obtained, the rafters which compose the roof are all acting on each other in the direction of their lengths; and by this action, combined with their weights, they sustain no strain but that of compression, the strain of all others that they are the most able to resist. We may consider them as so many inflexible lines having their weights accumulated in their centres of gravity. But it will allow an easier investigation of the subject, if we suppose the weights to be at the joints, equal to the real vertical pressures which are exerted on these points. These are very easily computed; for it is plain, that the weight of the beam AB (fig. 9.) is to the part of this weight that is supported at B as AB to AG. Therefore, if W represent the weight of the beam, the vertical pressure at B will be $W \times \frac{AG}{AB}$, and the vertical pressure

at A will be $W \times \frac{BG}{AB}$. In like manner, the prop BF being considered as another beam, and f as its centre of gravity and w as its weight, a part of this weight, equal to $w \times \frac{fF}{BF}$, is supported at B, and the whole vertical

pressure at B is $W \times \frac{AG}{AB} + w \times \frac{fF}{BF}$. And thus we greatly simplify the construction of the mutual thrusts of roof frames. We need hardly observe, that although these pressures by which the parts of a frame support each other in opposition to the vertical action of gravity, are always exerted in the direction of the pieces, they may be resolved into pressures acting in any other direction which may engage our attention.

All that we propose to deliver on this subject at present may be included in the following proposition.

Let $ABCDE$ (fig. 10.) be an assemblage of rafters in a vertical plane, resting on two fixed points A and E in a horizontal line, and perfectly moveable round all the joints A, B, C, D, E ; and let it be supposed to be in equilibrium, and let us investigate what adjustment of the different circumstances of weight and inclination of its different parts is necessary for producing this equilibrium.

Let F, G, H, I, be the centres of gravity of the different rafters, and let these letters express the weights of each. Then (by what has been said above) the weight which presses B directly downwards is $F \times \frac{AF}{AB} + G \times \frac{CG}{BC}$. The weight on C is in like manner $G \times \frac{BG}{BC} + H \times \frac{DH}{CD}$, and that on D is $H \times \frac{CH}{CD} + I \times \frac{EI}{DE}$.

Let $A b c d E$ be the figure $ABCDE$ inverted, in the manner already described. It may be conceived as a thread fastened at A and E , and loaded at b, c , and

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of. d with the weights which are really pressing on B, C, and D. It will arrange itself into such a form that all will be in equilibrio. We may discover this form by means of this single consideration, that any part bc of the thread is equally stretched throughout, in the direction of its length. Let us therefore investigate the proportion between the weight b , which we suppose to be pulling the point b in the vertical direction bb to the weight c , which is pulling down the point d in a similar manner. It is evident, that since AE is a horizontal line, and the figures $Abcde$ and $ABCDE$ equal and similar, the lines Bb , Cc , Dd , are vertical. Take bf to represent the weight hanging at b . By stretching the threads bA and bc , it is set in opposition to the contractile powers of the threads, acting in the directions bA and bc , and it is in immediate equilibrio with the equivalent of these two contractile forces. Therefore make bg equal to bf , and make it the diagonal of a parallelogram $bbig$. It is evident that bb , bi , are the forces exerted by the threads bA , bc . Then, seeing that the thread bc is equally stretched in both directions, make ck equal to bi ; ck is the contractile force which is excited at c by the weight which is hanging there. Draw kl parallel to cd , and lm parallel to bc . The force lc is the equivalent of the contractile forces ck , cm , and is therefore equal and opposite to the force of gravity acting at C . In like manner, make $dn = cm$, and complete the parallelogram $ndpo$, having the vertical line od for its diagonal. Then dn and dp are the contractile forces excited at d , and the weight hanging there must be equal to od .

Therefore, the load at b is to the load at d as bg to do . But we have seen that the compressing forces at B, C, D may be substituted for the extending forces at b , c , d . Therefore the weights at B, C, D which produce the compressions, are equal to the weights at b , c , d , which produce the extensions. Therefore $bg : do =$

$$F \times \frac{AF}{AB} + G \times \frac{CG}{BC} : H \times \frac{CH}{CD} + I \times \frac{EI}{DE}.$$

Let us enquire what relation there is between this proportion of the loads upon the joints at B and D, and the angles which the rafters make at these joints with each other, and with the horizon or the plumb lines. Produce AB till it cut the vertical Cc in Q ; draw BR parallel to CD , and BS parallel to DE . The similarity of the figures $ABCDE$ and $Abcde$, and the similarity of their position with respect to the horizontal and plumb lines, show, without any further demonstration, that the triangles QCB and gbi are similar, and that $QB : BC = gi : ib = bb : ib$. Therefore QB is to BC as the contractile force exerted by the thread Ab to that exerted by bc ; and therefore QB is to BC as the compression of BA to the compression on BC (A). Then, because bi is equal to ck , and the triangles CBR and ckl are similar, $CB : BR = ck : kl = ck : cm$, and CB is to BR as the compression on CB to the compression on CD . And, in like manner, be-

cause $cm = dn$, we have BR to BS as the compression on DC to the compression on DE . Also $BR : RS = nd : do$, that is, as the compression on DC to the load on D. Finally, combining all these ratios

$$QC : CB = gb : bi = gb : kc$$

$$CB : BR = kc : kl = kc : dn$$

$$BR : BS = nd : no = dn : no$$

$$BS : RS = no : do = no : do, \text{ we have finally}$$

$$QC : RS = gb : od = \text{Load at B} : \text{Load at D.}$$

Now

$$QC : BC = f, QBC : f, BQC = f, ABC : f, AB b$$

$$BC : BR = f, BRC : f, BCR = f, CD d : f, b BC$$

$$BR : RS = f, BSR : f, RBS = f, d DE : f, CDE$$

Therefore

$$QC : RS = f, ABC : f, CD d : f, d DE : f, CDE : f, AB b : f, b BC.$$

Or

$$QC : RS = \frac{f, ABC}{f, AB b \cdot f, CB b} : \frac{f, CDE}{f, d DC \cdot f, d DE}.$$

That is, the loads on the different joints are as the sines of the angles at these joints directly, and as the products of the sines of the angles which the rafters make with the plumb-lines inversely.

Or, the loads are as the sines of the angles of the joints directly, and as the products of the cosines of the elevations of the rafters jointly.

Or, the loads at the joints are as the sines of the angles at the joints, and as the products of the secants of elevation of the rafters jointly: for the secants of angles are inversely as the cosines.

Draw the horizontal line BT . It is evident, that if this be considered as the radius of a circle, the lines BQ , BC , BR , BS are the secants of the angles which these lines make with the horizon. And they are also as the thrusts of those rafters to which they are parallel. Therefore, the thrust which any rafter makes in its own direction is as the secant of its elevation.

The horizontal thrust is the same at all the angles. For $i = k = m = n = p$. Therefore both walls are equally pressed out by the weight of the roof. We can find its quantity by comparing it with the load on one of the joints:

$$\text{Thus, } QC : CB = f, ABC : f, AB b$$

$$BC : BT = \text{Rad.} : f, BCT = \text{Rad.} : f, CB b$$

$$\text{Therefore, } QC : BT = \text{Rad.} \times f, ABC : f, b BA \times f, b BC$$

It deserves remark, that the lengths of the beams do not affect either the proportion of the load at the different joints, nor the position of the rafters. This depends merely on the weights at the angles. If a change of length affects the weight, this indeed affects the form also; and this is generally the case. For it seldom happens, indeed it never should happen, that the weight on rafters of longer bearing are not greater. The covering alone increases nearly in the proportion of the length of the rafter.

If the proportion of the weights at B, C, and D are

(A) This proportion might have been shown directly without any use of the inverted figure or consideration of contractile forces; but this substitution gives distinct notions of the mode of acting even to persons not much conversant in such disquisitions; and we wish to make it familiar to the mind, because it gives an easy solution of the most complicated problems, and furnishes the practical carpenter, who has little science, with solutions of the most difficult cases by experiment. A festoon, as we called it, may easily be made; and we are certain, that the forms into which it will arrange itself are models of perfect frames.

Roof

are given, as also the position of any two of the lines, the position of all the rest is determined.

If the horizontal distances between the angles are all equal, the forces on the different angles are proportional to the verticals drawn on the lines through these angles from the adjoining angle, and the thrusts from the adjoining angles are as the lines which connect them.

If the rafters themselves are of equal lengths, the weights at the different angles are as these verticals and as the secants of the elevation of the rafters jointly.

29
Practical
inferences.

This proposition is very fruitful in its practical consequences. It is easy to perceive that it contains the whole theory of the construction of arches; for each stone of an arch may be considered as one of the rafters of this piece of carpentry, since all is kept up by its mere equilibrium. We may have an opportunity in some future article of exhibiting some very elegant and simple solutions of the most difficult cases of this important problem; and we now proceed to make use of the knowledge we have acquired for the construction of roofs.

30
To deter-
mine the
best form
of a kirk-
roof.

We mentioned by the bye a problem which is not unfrequent in practice, to determine the best form of a kirk-roof. Mr Couplet of the Royal Academy of Paris has given a solution of it in an elaborate memoir in 1726, occupying several lemmas and theorems.

Let AE (fig. 11.) be the width, and CF the height; it is required to construct a roof ABCDE whose rafters AB, BC, CD, DE, are all equal, and which shall be in equilibrio.

Draw CE, and bisect it perpendicularly in H by the line DHG, cutting the horizontal line AE in G. About the centre G, with the distance GE, describe the circle EDC. It must pass through C, because CH is equal to HE and the angles at H are equal. Draw HK parallel to FE, cutting the circumference in K. Draw CK, cutting GH in D. Join CD, ED; these lines are the rafters of half of the roof required.

We prove this by showing, that the loads in the angles C and D are equal. For this is the proportion which results from the equality of the rafters, and the extent of surface of the uniform roofing which they are supposed to support. Therefore produce ED till it meet the vertical FC in N; and having made the side CBA similar to CDE, complete the parallelogram BCDP, and draw DB, which will bisect CP in R, as the horizontal line KH, bisects CF in Q. Draw KF, which is evidently parallel to DP. Make CS perpendicular to CF, and equal to FG; and about S, with the radius SF, describe the circle FKW. It must pass through K, because SF is equal to CG, and CQ = QF. Draw WK, WS, and produce BC, cutting ND in O.

The angle WKF at the circumference is one-half of the angle WSF at the centre, and is therefore equal to WSC, or CGF. It is therefore double of the angle CEF or ECS. But ECS is equal to ECD and DCS, and ECD is one-half of NDC, and DCS is one-half of DCO, or CDP. Therefore the angle WKF is equal to NDP, and WK is parallel to ND, and CF is to CW as CP to CN; and CN is equal to CP. But it has been shown above, that CN and CP are as the

loads upon D and C. These are therefore equal, and the frame ABCDE is in equilibrio.

A comparison of this solution with that of Mr Couplet will show its great advantage in respect of simplicity and perspicuity. And the intelligent reader can easily adapt the construction to any proportion between the rafters AB and BC, which other circumstances, such as garret-room, &c. may render convenient. The construction must be such that NC may be to CP as CD to CD + DE.

2

Whatever proportion of AB to BC is assumed, the point D' will be found in the circumference of a semicircle H'D'b', whose centre is in the line CE, and having AB : BC = CH' : H'E, = c b' : b' E. The rest of the construction is simple.

In buildings which are roofed with slate, tile, or shingles, the circumstance which is most likely to limit the construction is the slope of the upper rafters CB, CD. This must be sufficient to prevent the penetration of rain, and the stripping by the winds. The only circumstance left in our choice in this case is the proportion of the rafters AB and BC. Nothing is easier than making NC to CP in any desired proportion when the angle BCD is given.

We need not repeat that it is always a desirable thing to form a truss for a roof in such a manner that it shall be in equilibrio. When this is done, the whole force of the struts and braces which are added to it is employed in preserving this form, and no part is expended in unnecessary strains. For we must now observe, that the equilibrium of which we have been treating is always of that kind which we called the tottering, and the roof requires stays, braces, or hanging timbers, to give it stiffness, or keep it in shape. We have also said enough to enable any reader, acquainted with the most elementary geometry and mechanics, to compute the transverse strains and the thrusts to which the component parts of all roofs are exposed.

It only remains now to show the general maxims by which all roofs must be constructed, and the circumstances which determine their excellence. In doing this we shall be exceedingly brief, and almost content ourselves with exhibiting the principal forms, of which the endless variety of roofs are only slight modifications. We shall not trouble the reader with any account of such roofs as receive part of their support from the interior walls, but confine ourselves to the more difficult problem of throwing a roof over a wide building, without any intermediate support; because when such roofs are constructed in the best manner, that is, deriving the greatest possible strength from the materials employed, the best construction of the others is necessarily included. For all such roofs as rest on the middle walls are roofs of smaller bearing. The only exception deserving notice is the roofs of churches, which have aisles separated from the nave by columns. The roof must rise on these. But if it is of an arched form internally, the horizontal thrusts must be nicely balanced, that they may not push the columns aside.

The simplest notion of a roof-frame is, that it consists of two rafters AB and BC (fig. 12.), meeting in the ridge B.

Even this simple form is susceptible of better and worse

Roof, worse. We have already seen, that when the weight of a square yard of covering is given, a steeper roof requires stronger rafters, and that when the scantling of the timbers is also given, the relative strength of a rafter is inversely as its length. But there is now another circumstance to be taken into the account, viz. the support which one rafter leg gives to the other. The best form of a rafter will therefore be that in which the relative strength of the legs, and their mutual support, give the greatest product. Mr Muller, in his *Military Engineer*, gives a determination of the best pitch of a roof, which has considerable ingenuity, and has been copied into many books of military education both in this island and on the continent. Describe on the width AC, fig. 13. the semicircle AFC, and bisect it by the radius FD. Produce the rafter AB to the circumference in E, join EC, and draw the perpendicular EG.—

Now $AB : AD = AC : AE$, and $AE = \frac{AD \times AC}{AB}$, and AE is inversely as AB, and may therefore represent its strength in relation to the weight actually lying on it. Also the support which CB gives to AB is as CE, because CE is perpendicular to AB. Therefore the form which renders $AE \times EC$ a maximum seems to be that which has the greatest strength. But $AC : AE = EC : EG$, and $EG = \frac{AE \cdot EC}{AC}$, and is there-

fore proportional to AE.EC. Now EG is a maximum when B is in F, and a square pitch is in this respect the strongest. But it is very doubtful whether this construction is deduced from just principles. There is another strain to which the leg AB is exposed, which is not taken into the account. This arises from the curvature which it unavoidably acquires by the transverse pressure of its load. In this state it is pressed in its own direction by the abutment and load of the other leg. The relation between this strain and the resistance of the piece is not very distinctly known. Euler has given a dissertation on this subject (which is of great importance, because it affects posts and pillars of all kinds; and it is very well known that a post of ten feet long and six inches square will bear with great safety a weight which would crush a post of the same scantling and 20 feet long in a minute); but his determination has not been acquiesced in by the first mathematicians. Now it is in relation to these two strains that the strength of the rafter should be adjusted. The fineness of the support given by the other leg is of no consequence, if its own strength is inferior to the strain. The force which tends to crush the leg AB, by compressing it in its curved state, is to its weight as AB to BD, as is easily seen by the composition of forces; and its incurvation by this force has a relation to it, which is of intricate determination. It is contained in the properties demonstrated by Bernoulli of the elastic curve. This determination also includes the relation between the curvature and the length of the piece. But the whole of this seemingly simple problem is of much more difficult investigation than Mr Muller was aware of; and his rules for the pitch of a roof, and for the sally of a dock gate, which depends on the same principles, are of no value. He is, however, the first author who attempted to solve either of these problems on mechanical principles susceptible of precise reasoning. Belidor's solutions, in his *Architecture Hydraulique*, are below notice.

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Reasons of economy have made carpenters prefer a low pitch; and although this does diminish the support given by the opposite leg faster than it increases the relative strength of the other, this is not of material consequence, because the strength remaining in the opposite leg is still very great; for the supporting leg is acting against compression, in which case it is vastly stronger than the supported leg acting against a transverse strain.

But a roof of this simplicity will not do in most cases. There is no notice taken in its construction of the thrust which it exerts on the walls. Now this is the strain which is the most hazardous of all. Our ordinary walls, instead of being able to resist any considerable strain pressing them outwards, require, in general, some ties to keep them on foot. When a person thinks of the thinness and height of the walls of even a strong house, he will be surprised that they are not blown down by any strong puff of wind. A wall of three feet thick, and 60 feet high, could not withstand a wind blowing at the rate of 30 feet per second (in which case it acts with a force considerably exceeding two pounds on every square foot), if it were not stiffened by cross walls, joists, and roof, which all help to tie the different parts of the building together.

A carpenter is therefore exceedingly careful to avoid every horizontal thrust, or to oppose them by other forces. And this introduces another essential part into the construction of a roof, namely the tie or beam AC, (fig. 14.), laid from wall to wall, binding the feet A and C of the rafters together. This is the sole office of the beam; and it should be considered in no other light than as a string to prevent the roof from pushing out the walls. It is indeed used for carrying the ceiling of the apartments under it; and it is even made to support a flooring. But, considered as making part of a roof, it is merely a string; and the strain which it withstands tends to tear its parts asunder. It therefore acts with its whole absolute force, and a very small scantling would suffice if we could contrive to fasten it firmly enough to the foot of the rafter. If it is of oak, we may safely subject it to a strain of three tons for every square inch of its section. And fir will safely bear a strain of two tons for every square inch. But we are obliged to give the tie-beam much larger dimensions, that we may be able to connect it with the foot of the rafter by a mortise and tenon. Iron straps are also frequently added. By attending to this office of the tie-beam, the judicious carpenter is directed to the proper form of the mortise and tenon and of the strap. We shall consider both of these in a proper place, after we become acquainted with the various strains at the joints of a roof.

These large dimensions of the tie-beam allow us to load it with the ceilings without any risk, and even to lay floors on it with moderation and caution. But when it has a great bearing or span, it is very apt to bend downwards in the middle, or, as the workmen term it, to sway or swag; and it requires a support. The question is, where to find this support? What fixed points can we find with which to connect the middle of the tie-beam? Some ingenious carpenter thought of suspending it from the ridge by a piece of timber BD (fig. 15.), called by our carpenters the *king-post*. It must be acknowledged that there was great ingenuity in this thought. It was also perfectly just. For the weight of the rafters BA, BC tends to make them fly

Roof.

out at the foot. This is prevented by the tie-beam, and this excites a pressure, by which they tend to compress each other. Suppose them without weight, and that a great weight is laid on the ridge B. This can be supported only by the butting of the rafters in their own directions AB and CB, and the weight tends to compress them in the opposite directions, and, through their intervention, to stretch the tie-beam. If neither the rafters can be compressed, nor the tie-beam stretched, it is plain that the triangle ABC must retain its shape, and that B becomes a fixed point, very proper to be used as a point of suspension. To this point, therefore, is the tie-beam suspended by means of the king-post. A common spectator, unacquainted with carpentry, views it very differently, and the tie-beam appears to him to carry the roof. The king-post appears a pillar resting on the beam, whereas it is really a string; and an iron-rod of one-sixteenth of the size would have done just as well. The king-post is sometimes mortised into the tie-beam, and pins put through the joint, which gives it more the look of a pillar with the roof resting on it. This does well enough in many cases. But the best method is to connect them by an iron strap, like a stirrup, which is bolted at its upper ends into the king-post, and passes round the tie-beam. In this way a space is commonly left between the end of the king-post and the upper side of the tie-beam. Here the beam plainly appears hanging in the stirrup; and this method allows us to restore the beam to an exact level, when it has sunk by the unavoidable compression or other yielding of the parts. The holes in the sides of the iron strap are made oblong instead of round; and the bolt which is drawn through all is made to taper on the under side; so that driving it farther draws the tie-beam upwards. A notion of this may be formed by looking at fig. 16. which is a section of the post and beam.

It requires considerable attention, however, to make this suspension of the tie-beam sufficiently firm. The top of the king-post is cut into the form of the arch-stone of a bridge, and the heads of the rafters are firmly mortised into this projecting part. These projections are called joggles, and are formed by working the king-post out of a much larger piece of timber; and cutting off the unnecessary wood from the two sides; and, lest all this should not be sufficient, it is usual in great works to add an iron-plate or strap of three branches, which are bolted into the heads of the king-post and rafters.

The rafters, though not so long as the beam, seem to stand as much in need of something to prevent their bending, for they carry the weight of the covering.—This cannot be done by suspension, for we have no fixed points above them: But we have now got a very firm point of support at the foot of the king-post.—Braces, or struts, ED, FD, (fig. 17.), are put under the middle of the rafters, where they are slightly mortised, and their lower ends are firmly mortised into joggles formed on the foot of the king-post. As these braces are very powerful in their resistance to compression, and the king-post equally so to resist extension, the points E and F may be considered as fixed; and the rafters being thus reduced to half their former length, have now four times their former relative strength.

Roofs do not always consist of two sloping sides meeting in a ridge. They have sometimes a flat on the top,

with two sloping sides. They are sometimes formed with a double slope, and are called *kirk* or *mansarde roofs*. They sometimes have a valley in the middle, and are then called M roofs. Such roofs require another piece which may be called the *truss beam*, because all such frames are called *trusses*, probably from the French word *trousse*, because such roofs are like portions of plain roofs, *troussés* or shortened.

A flat-topped roof is thus constructed. Suppose the three rafters AB, BC, CD (fig. 18.) of which AB and CD are equal, and BC horizontal. It is plain that they will be in equilibrio, and the roof have no tendency to go to either side. The tie-beam AD withstands the horizontal thrusts of the whole frame, and the two rafters AB and CD are each pressed in their own directions in consequence of their butting with the middle rafter or truss-beam BC. It lies between them like the keystone of an arch. They lean towards it, and it rests on them. The pressure which the truss-beam and its load excites on the two rafters is the very same as if the rafters were produced till they meet in G, and a weight were laid on these equal to that of BC and its load. If therefore the truss-beam is of a scantling sufficient for carrying its own load, and withstanding the compression from the two rafters, the roof will be equally strong (while it keeps its shape) as the plain roof AGD furnished with king-post and braces. We may conceive this another way. Suppose a plain roof AGD, without braces to support the middle B and C of the rafters. Then let a beam BC be put in between the rafters, butting upon little notches cut in the rafters. It is evident that this must prevent the rafters from bending downwards, because the points B and C cannot descend, moving round the centres A and D, without shortening the distance BC between them. This cannot be without compressing the beam BC. It is plain that BC may be wedged in, or wedges driven in between its ends B and C and the notches in which it is lodged. These wedges may be driven in till they even force out the rafters GA and GD. Whenever this happens, all the mutual pressure of the heads of these rafters at G is taken away, and the parts GB and GC may be cut away, and the roof ABCD will be as strong as the roof AGD furnished with the king-post and braces, because the truss-beam gives a support of the same kind at B and C as the brace would have done.

But this roof ABCD would have no firmness of shape. Any addition of weight on one side would destroy the equilibrium at the angle, would depress that angle, and cause the opposite one to rise. To give it stiffness, it must either have ties or braces, or something partaking of the nature of both. The usual method of framing is to make the heads of the rafters butt on the joggles of two side-posts BE and CF, while the truss-beam, or strut as it is generally termed by the carpenters, is mortised square into the inside of the heads. The lower ends E and F of the side-posts are connected with the tie-beam either by mortises or straps.

This construction gives firmness to the frame; for the angle B cannot descend in consequence of any inequality of pressure, without forcing the other angle C to rise. This it cannot do, being held down by the post CF. And the same construction fortifies the tie-beam, which is now suspended at the points E and F from

Roof.

Roof. from the points B and C, whose firmness we have just now shown.

38 But although this roof may be made abundantly strong, it is not quite so strong as the plain roof AGD of the same scantling. The compression which BC must sustain in order to give the same support to the rafters at B and C that was given by braces properly placed, is considerably greater than the compression of the braces. And this strain is an addition to the transverse strain which BC gets from its own load. Also this form necessarily exposes the tie-beam to cross strains. If BE is mortised into the tie-beam, then the strain which tends to depress the angle ABC presses on the tie-beam at E transversely, while a contrary strain acts on F, pulling it upwards. These strains however are small; and this construction is frequently used, being susceptible of sufficient strength, without much increase of the dimensions of the timbers; and it has the great advantage of giving free room in the garrets. Were it not for this, there is a much more perfect form represented in fig. 19. Here the two posts BE, CF are united below. All transverse action on the tie-beam is now entirely removed. We are almost disposed to say that this is the strongest roof of the same width and slope: for if the iron strap which connects the pieces BE, CF with the tie-beam have a large bolt G through it, confining it to one point of the beam, there are five points A, B, C, D, G, which cannot change their places, and there is no transverse strain in any of the connections.

When the dimensions of the building are very great, so that the pieces AB, BC, CD, would be thought too weak for withstanding the cross strains, braces may be added as is expressed in fig. 18. by the dotted lines. The reader will observe that it is not meant to leave the top flat externally: it must be raised a little in the middle to shoot off the rain. But this must not be done by incurvating the beam BC. This would soon be crushed, and spring upwards. The slopes must be given by pieces of timber added above the strutting beam.

39 And thus we have completed a frame of a roof. It consists of these principal members: The rafters, which are immediately loaded with the covering; the tie-beam, which withstands the horizontal thrust by which the roof tends to fly out below and push out the walls; the king-posts, which hang from fixed points and serve to uphold the tie-beam, and also to afford other fixed points on which we may rest the braces which support the middle of the rafters; and lastly the truss or strutting-beam, which serves to give mutual abutment to the different parts which are at a distance from each other. The rafters, braces, and trusses are exposed to compression, and must therefore have not only cohesion but stiffness. For if they bend, the prodigious compressions to which they are subjected would quickly crush them in this bended state. The tie-beams and king-posts, if performing no other office but supporting the roof, do not require stiffness, and their places might be supplied by ropes, or by rods of iron of one-tenth part of the section that even the smallest oak stretcher requires. These members require no greater dimensions than what is necessary for giving sufficient joints, and any more is a needless expence and load. All roofs, however complicated, consist of these essential parts, and if pieces of timber are to be seen

which perform none of these offices, they must be pronounced useless, and they are frequently hurtful, by producing cross strains in some other piece. In a roof properly constructed there should be no such strains. All the timbers, except those which immediately carry the covering, should be either pushed or drawn in the direction of their length. And this is the rule by which a roof should always be examined.

40 These essential parts are susceptible of numberless combinations and varieties. But it is a prudent maxim to make the construction as simple, and consisting of as few parts, as possible. We are less exposed to the imperfections of workmanship, such as loose joints, &c. Another essential harm arises from many pieces, by the compression and the shrinking of the timber in the cross direction of the fibres. The effect of this is equivalent to the shortening of the piece which butts on the joint. This alters the proportions of the sides of the triangle on which the shape of the whole depends. Now in a roof such as fig. 18. there is twice as much of this as in the plain pent roof, because there are two posts. And when the direction of the butting pieces is very oblique to the action of the load, a small shrinking permits a great change of shape. Thus in a roof of what is called pediment pitch, where the rafters make an angle of 30 degrees with the horizon, half an inch compression of the king-post will produce a sagging of an inch, and occasion a great strain on the tie-beam if the posts are mortised into it. In fig. 2. of the roofs in the article ARCHITECTURE, half an inch shrinking of each of the two posts will allow the middle to sag above five inches. Fig. 1. of the same plate is faulty in this respect, by cutting the strutting-beam in the middle. The strutting-beam is thus shortened by three shrinkings, while there is but one to shorten the rafters. The consequence is, that the truss which is included within the rafters will sag away from them, and then they must bend in the middle till they again rest on this included truss. This roof is, however, constructed on the whole on good principles, and we adduce it only to show the advantages of simplicity. This cutting of the strutting-beam is unavoidable, if we would preserve the king-post. But we are in doubt whether the service performed by it in this case will balance the inconvenience. It is employed only to support the middle of the upper half of each rafter, which it does but imperfectly, because the braces and strut must be cut half through at their crossing: if these joints are made tight, as a workman would wish to do, the settling of the roof will cause them to work on each other crosswise with insuperable force, and will undoubtedly strain them exceedingly.

This method of including a truss within the rafters of a pent roof is a very considerable addition to the art of carpentry. But to insure its full effect, it should always be executed in the manner represented in fig. 1. Plate XLVIII. with butting rafters under the principal ones, butting on joggles in the heads of the posts. Without this the strut-beam is hardly of any service. We would therefore recommend fig. 20. as a proper construction of a trussed roof, and the king-post which is placed in it may be employed to support the upper part of the rafters, and also for preventing the strut-beam from bending in either direction in consequence of its great compression. It will also give a suspension for the great burdens which are sometimes necessary in

Roof.

Are susceptible of numberless combinations and varieties.

Plate XLVIII.

Plate CCCCXL.

a theatre. The machinery has no other firm points to which it can be attached; and the portion of the single rafters which carry this king-post are but short, and therefore may be considerably loaded with safety.

We observe in the drawings which we sometimes have of Chinese buildings, that the trussing of roofs is understood by them. Indeed they must be very experienced carpenters. We see wooden buildings run up to a great height, which can be supported only by such trussing. One of these is sketched in fig. 21. There are some very excellent specimens to be seen in the buildings at Deptford, belonging to the victualling-office, usually called the *Red House*, which were erected about the year 1788, and we believe are the performance of Mr James Arrow of the Board of Works, one of the most intelligent artists in this kingdom.

41
Remarks
addressed to
practical
carpenters.

Thus have we given an elementary, but a rational or scientific, account of this important part of the art of carpentry. It is such, that any practitioner, with the trouble of a little reflection, may always proceed with confidence, and without resting any part of his practice on the vague notions which habit may have given him of the strength and supports of timbers, and of their manner of acting. That these frequently mislead, is proved by the mutual criticisms which are frequently published by the rivals in the profession. They have frequently sagacity enough (for it can seldom be called science) to point out glaring blunders; and any person who will look at some of the performances of Mr Price, Mr Wyatt, Mr Arrow, and others of acknowledged reputation, will readily see them distinguishable from the works of inferior artists by simplicity alone. A man without principles is apt to consider an intricate construction as ingenious and effectual; and such roofs sometimes fail merely by being ingeniously loaded with timber, but more frequently still by the wrong action of some useless piece, which produces strains that are transverse to other pieces, or which, by rendering some points too firm, cause them to be deserted by the rest in the general subsiding of the whole. Instances of this kind are pointed out by Price in his *British Carpenter*. Nothing shows the skill of a carpenter more than the distinctness with which he can foresee the changes of shape which must take place in a short time in every roof. A knowledge of this will often correct a construction which the mere mathematician thinks unexceptionable, because he does not reckon on the actual compression which must obtain, and imagines that his triangles, which sustain no cross strains, invariably retain their shape till the pieces break. The sagacity of the experienced carpenter is not, however, enough without science for perfecting the art. But when he knows how much a particular piece will yield to compression in one case, science will tell him, and nothing but science can do it, what will be the compression of the same piece in another very different case. Thus he learns how far it will now yield, and then he proportions the parts so to each other, that when all have yielded according to their strains, the whole is of the shape he wished to produce, and every joint is in a state of firmness. It is here that we observe the greatest number of improprieties. The iron straps are frequently in positions not suited to the actual strain on them, and they are in a state of violent twist, which both tends strongly to

break the strap, and to cripple the pieces which they surround.

In like manner, we frequently see joints or mortises in a state of violent strain on the tenons, or on the heels and shoulders. The joints were perhaps properly shaped to the primitive form of the truss; but by its settling, the bearing on the push is changed: the brace, for example, in a very low pitched roof, comes to press with the upper part of the shoulder, and, acting as a powerful lever on the tenon, breaks it. In like manner, the lower end of the brace, which at first butted firmly and squarely on the joggle of the king-post, now presses with one corner with prodigious force, and seldom fails to splinter off on that side. We cannot help recommending a maxim of Mr Perronet the celebrated hydraulic architect of France, as a golden rule, viz. to make all the shoulders of butting pieces in the form of an arch of a circle, having the opposite end of the piece for its centre. Thus, in fig. 18. if the joggle-joint B be of this form, having A for its centre, the sagging of the roof will make no partial bearing at the joint; for in the sagging of the roof, the piece AB turns or bends round the centre A, and the counter-pressure of the joggle is still directed to A, as it ought to be. We have just now said *bends* round A. This is too frequently the case, and it is always very difficult to give the tenon and mortise in this place a true and invariable bearing. The rafter pushes in the direction BA, and the beam resists in the direction AD. The abutment should be perpendicular to neither of these but in an intermediate direction, and it ought also to be of a curved shape. But the carpenters perhaps think that this would weaken the beam too much to give it this shape in the shoulder; they do not even aim at it in the heel of the tenon. The shoulder is commonly even with the surface of the beam. When the bearing therefore is on this shoulder, it causes the foot of the rafter to slide along the beam till the heel of the tenon bears against the outer end of the mortise (See Price's *British Carpenter*, Plate C. fig. 1 K). This abutment is perpendicular to the beam in Price's book, but it is more generally pointed a little outwards below, to make it more secure against starting. The consequence of this construction is, that when the roof settles, the shoulder comes to bear at the inner end of the mortise, and it rises at the outer, and the tenon taking hold of the wood beyond it, either tears it out or is itself broken. This joint therefore is seldom trusted to the strength of the mortise and tenon, and is usually secured by an iron strap, which lies obliquely to the beam, to which it is bolted by a large bolt quite through, and then embraces the outside of the rafter foot. Very frequently this strap is not made sufficiently oblique, and we have seen some made almost square with the beam. When this is the case, it not only keeps the foot of the rafter from flying out, but it binds it down. In this case, the rafter acts as a powerful lever, whose fulcrum is the inner angle of the shoulder, and then the strap never fails to cripple the rafter at the point. All this can be prevented only by making the strap very long and very oblique, and by making its outer end (the stirrup part) square with its length, and making a notch in the rafter foot to receive it. It cannot now cripple the rafter, for it will rise along with it, turning round the

the bolt at its inner end. We have been thus particular on this joint, because it is here that the ultimate strain of the whole roof is exerted, and its situation will not allow the excavation necessary for making it a good mortise and tenon.

Similar attention must be paid to some other straps, such as those which embrace the middle of the rafter, and connect it with the post or truss below it. We must attend to the change of shape produced by the sagging of the roof, and place the strap in such a manner as to yield to it by turning round its bolt, but so as not to become loose, and far less to make a fulcrum for any thing acting as a lever. The strains arising from such actions, in framings of carpentry which change their shape by sagging, are enormous, and nothing can resist them.

We shall close this part of the subject with a simple method, by which any carpenter, without mathematical science, may calculate with sufficient precision the strains or thrusts which are produced on any point of his work, whatever be the obliquity of the pieces.

Let it be required to find the horizontal thrust acting on the tie-beam AD of fig. 18. This will be the same as if the weight of the whole roof were laid at G on the two rafters GA and GD. Draw the vertical line GH. Then, having calculated the weight of the whole roof that is supported by this single frame ABCD, including the weight of the pieces AB, BC, CD, BE, CF themselves, take the number of pounds, tons, &c. which expresses it from any scale of equal parts, and set it from G to H. Draw HK, HL parallel to GD, GA, and draw the line KL, which will be horizontal when the two sides of the roof have the same slope. Then ML measured on the same scale will give the horizontal thrust, by which the strength of the tie-beam is to be regulated. GL will give the thrust which tends to crush the rafters, and LM will also give the force which tends to crush the strut-beam BC.

In like manner, to find the strain on the king-post BD of fig. 17. consider that each brace is pressed by half the weight of the roofing laid on BA or BC, and this pressure, or at least its hurtful effect, is diminished in the proportion of BA to DA, because the action of gravity is vertical, and the effect which we want to counteract by the braces is in a direction Ee perpendicular to BA or BC. But as this is to be resisted by the brace fE acting in the direction fE, we must draw fE perpendicular to Ee, and suppose the strain augmented in the proportion of Ee to Ef.

Having thus obtained in tons, pounds, or other measures, the strains which must be balanced at f by the cohesion of the king-post, take this measure from the scale of equal parts, and set it off in the directions of the braces to G and H, and complete the parallelogram GfHK; and fK measured on the same scale will be the strain on the king-post.

The artist may then examine the strength of his truss upon this principle, that every square inch of oak will bear at an average 7000 pounds compressing or stretching it, and may be safely loaded with 3500 for any length of time; and that a square inch of fir will in like manner securely bear 2500. And, because straps are used to resist some of these strains, a square inch of well wrought tough iron may be safely strained

by 50,000 pounds. But the artist will always reflect, that we cannot have the same confidence in iron as in timber. The faults of this last are much more easily perceived; and when timber is too weak, it gives us warning of its failure, by yielding sensibly before it breaks. This is not the case with iron; and much of its service depends on the honesty of the blacksmith.

In this way may any design of a roof be examined. We shall here give the reader a sketch of two or three trussed roofs, which have been executed in the chief varieties of circumstances which occur in common practice.

Fig. 22. is the roof of St Paul's Church, Covent Garden, London, the work of Inigo Jones. Its construction is singular. The roof extends to a considerable distance beyond the building, and the ends of the tie-beams support the Tuscan cornice, appearing like the mutules of the Doric order. Such a roof could not rest on the tie-beam. Inigo Jones has therefore supported it by a truss below it; and the height has allowed him to make this extremely strong with very little timber. It is accounted the highest roof of its width in London. But this was not difficult, by reason of the great height which its extreme width allowed him to employ without hurting the beauty of it by too high a pitch. The supports, however, are disposed with judgment.

Fig. 23. is a kirk or mansard roof by Price, and supposed to be of large dimensions, having braces to carry the middle of the rafters.

It will serve exceedingly well for a church having pillars. The middle part of the tie-beam being taken away, the strains are very well balanced, so that there is no risk of its pushing aside the pillars on which it rests.

Fig. 24. is the celebrated roof of the theatre of the university of Oxford, by Sir Christopher Wren. The span between the walls is 75 feet. This is accounted a very ingenious, and is a singular performance. The middle part of it is almost unchangeable in its form; but from this circumstance it does not distribute the horizontal thrust with the same regularity as the usual construction. The horizontal thrust on the tie-beam is about twice the weight of the roof, and is withstood by an iron strap below the beam, which stretches the whole width of the building in the form of a rope, making part of the ornament of the ceiling.

In all the roofs which we have considered hitherto the thrust is discharged entirely from the walls by the tie-beam. But this cannot always be done. We frequently want great elevation within, and arched ceilings. In such cases, it is a much more difficult matter to keep the walls free of all pressure outwards, and there are few buildings where it is completely done. Yet this is the greatest fault of a roof. We shall just point out the methods which may be most successfully adopted.

We have said that a tie-beam just performs the office of a string. We have said the same of the king-post. Now suppose two rafters AB, BC (fig. 25.) moveable about the joint B, and resting on the top of the walls. If the line BD be suspended from B, and the two lines DA, DC be fastened to the feet of the rafters, and if these lines be incapable of extension, it is plain that all thrust is removed from the walls as effectually

Roof.

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Sketch of some trussed roofs, &c.

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Cases in which the thrust cannot be discharged from the walls by the tie-beam.

Roof.

fectually as by a common tie-beam. And by shortening BD to Bd , we gain a greater inside height, and more room for an arched ceiling. Now if we substitute a king-post BD (fig. 26.) and two stretchers or hammer-beams DA, DC for the other strings, and connect them firmly by means of iron straps, we obtain our purpose.

Let us compare this roof with a tie-beam roof in point of strain and strength. Recur to fig. 25. and complete the parallelogram ABCF, and draw the diagonals AC, BF crossing in E. Draw BG perpendicular to CD. We have seen that the weight of the roof (which we may call W) is to the horizontal thrust at C as BF to EC; and if we express this thrust by

T, we have $T = \frac{W \times EC}{BF}$. We may at present con-

sider BC as a lever moveable round the joint B, and pulled at C in the direction EC by the horizontal thrust, and held back by the string pulling in the direction CD. Suppose that the forces in the directions EC and CD are in equilibrio, and let us find the force S by which the string CD is strained. These forces must (by the property of the lever) be inversely as the perpendiculars drawn from the centre of motion on the lines of their direction. Therefore $BG : BE :: T : S$,

$$\text{and } S = T \times \frac{BE}{BG} = W \times \frac{BE \cdot EC}{BF \cdot BG}$$

Therefore the strain upon each of the ties DA and DC is always greater than the horizontal thrust or the strain on a simple tie-beam. This would be no great inconvenience, because the smallest dimensions that we could give to these ties, so as to procure sufficient fixtures to the adjoining pieces, are always sufficient to withstand this strain. But although the same may be said of the iron straps which make the ultimate connections, there is always some hazard of imperfect work, cracks or flaws, which are not perceived. We can judge with tolerable certainty of the soundness of a piece of timber, but cannot say so much of a piece of iron. Moreover, there is a prodigious strain excited on the king-post, when BG is very short in comparison of BE, namely, the force compounded of the two strains S and S on the ties DA and DC.

But there is another defect from which the straight tie-beam is entirely free. All roofs settle a little.—When this roof settles, and the points B and D descend, the legs BA, BC must spread further out, and thus a pressure outwards is excited on the walls. It is seldom therefore that this kind of roof can be executed in this simple form, and other contrivances are necessary for counteracting this supervening action on the walls. Fig. 27. is one of the best which we have seen, and is executed with great success in the circus or equestrian theatre in Edinburgh, the width being 60 feet. The pieces EF and ED help to take off some of the weight, and by their greater uprightness they exert a smaller thrust on the walls. The beam Dd is also a sort of truss-beam, having something of the same effect. Mr Price has given another very judicious one of this kind, British Carpenter, Plate IK, fig. C, from which the tie-beam may be taken away, and there will remain very little thrust on the walls. Those which he has given in the following Plate K are, in our opinion, very faulty. The whole strain in these last roofs tends to break the rafters and ties transversely, and the fixtures of

the ties are also not well calculated to resist the strain to which the pieces are exposed. We hardly think that these roofs could be executed.

It is scarcely necessary to remind the reader, that in all that we have delivered on this subject, we have attended only to the construction of the principal rafters or trusses. In small buildings all the rafters are of one kind; but in great buildings the whole weight of the covering is made to rest on a few principal rafters, which are connected by beams placed horizontally, and either mortised into them or scarfed on them. These are called *purlins*. Small rafters are laid from purlin to purlin; and on these the laths for tiles, or the skirting-boards for slates, are nailed. Thus the covering does not immediately rest on the principal frames. This allows some more liberty in their construction, because the garrets can be so divided that the principal rafters shall be in the partitions and the rest left unincumbered. This construction is so far analogous to that of floors which are constructed with girders, binding, and bridging joists.

It may appear presuming in us to question the propriety of this practice. There are situations in which it is unavoidable, as in the roofs of churches, which can be allowed to rest on some pillars. In other situations, where partition-walls intervene at a distance not too great for a stout purlin, no principal rafters are necessary, and the whole may be roofed with short rafters of very slender scantling. But in a great uniform roof, which has no intermediate supports, it requires at least some reasons for preferring this method of carcase-roofing to the simpler method of making all the rafters alike. The method of carcase-roofing requires the selection of the greatest logs of timber, which are seldom of equal strength and soundness with thinner rafters. In these the outside planks can be taken off, and the best part alone worked up. It also exposes to all the defects of workmanship in the mortising of purlins, and the weakening of the rafters by this very mortising; and it brings an additional load of purlins and short rafters. A roof thus constructed may surely be compared with a floor of similar construction. Here there is not a shadow of doubt, that if the girders were sawed into planks, and these planks laid as joists sufficiently near for carrying the flooring boards, they will have the same strength as before, except so much as is taken out of the timber by the saw. This will not amount to one-tenth part of the timber in the binding, bridging, and ceiling joists, which are an additional load; and all the mortises and other joinings are so many diminutions of the strength of the girders; and as no part of a carpenter's work requires more skill and accuracy of execution, we are exposed to many chances of imperfection. But, not to rest on these considerations, however reasonable they may appear, we shall relate an experiment made by one on whose judgment and exactness we can depend.

Two models of floors were made 18 inches square of the finest uniform deal, which had been long seasoned. The one consisted of simple joists, and the other was framed with girders, binding, bridging, and ceiling joists. The plain joists of the one contained the same quantity of timber with the girders alone of the other, and both were made by a most accurate workman. They were placed in wooden trunks 18 inches square within,

46
General
Observation

47
Confirm
by exper
iment.

Roof. within, and rested on a strong projection on the inside. Small shot was gradually poured in upon the floors, so as to spread uniformly over them. The plain joisted floor broke down with 487 pounds, and the carcase floor with 327. The first broke without giving any warning; the other gave a violent crack when 294 pounds had been poured in.

A trial had been made before, and the loads were 341 and 482. But the models having been made by a less accurate hand, it was not thought a fair specimen of the strength which might be given to a carcase floor.

The only argument of weight which we can recollect in favour of the compound construction of roofs is, that the plain method would prodigiously increase the quantity of work, would admit nothing but long timber, which would greatly add to the expence, and would make the garrets a mere thicket of planks. We admit this in its full force; but we continue to be of the opinion that plain roofs are greatly superior in point of strength, and therefore should be adopted in cases where the great difficulty is to insure this necessary circumstance.

48 the fs on and dings. It would appear very neglectful to omit an account of the roofs put on round buildings, such as domes, cupolas, and the like. They appear to be the most difficult tasks in the carpenter art. But the difficulty lies entirely in the mode of framing, or what the French call the *trait de charpenterie*. The view which we are taking of the subject, as a part of mechanical science, has little connection with this. It is plain, that whatever form of a truss is excellent in a square building must be equally so as one of the frames of a round one; and the only difficulty is how to manage their mutual intersections at the top. Some of them must be discontinued before they reach that length, and common sense will teach us to cut them short alternately, and always leave as many, that they may stand equally thick as at their first springing from the base of the dome. Thus the length of the purlins which reach from truss to truss will never be too great.

The truth is, that a round building which gathers in at top, like a glass-house, a potter's kiln, or a spire steeple, instead of being the most difficult to erect with stability, is of all others the easiest. Nothing can show this more forcibly than daily practice, where they are run up without centres and without scaffoldings; and it requires gross blunders indeed in the choice of their outline to put them in much danger of falling from a want of equilibrium. In like manner, a dome of carpentry can hardly fall, give it what shape or what construction you will. It cannot fall unless some part of it flies out at the bottom: an iron hoop round it, or straps at the joinings of the trusses and purlins, which make an equivalent to a hoop, will effectually secure it. And as beauty requires that a dome shall spring almost perpendicularly from the wall, it is evident that there is hardly any thrust to force out the walls. The only part where this is to be guarded against is, where the tangent is inclined about 40 or 50 degrees to the horizon. Here it will be proper to make a course of firm horizontal joinings.

We doubt not but that domes of carpentry will now be raised of great extent. The Halle du Bles at Paris, of 200 feet in diameter, was the invention of an in-

telligent carpenter, the *Sieur Moulineau*. He was not by any means a man of science, but had much more mechanical knowledge than artificers usually have, and was convinced that a very thin shell of timber might not only be so shaped as to be nearly in equilibrio, but that if hooped or firmly connected horizontally, it would have all the stiffness that was necessary; and he presented his project to the magistracy of Paris. The grandeur of it pleased them, but they doubted of its possibility. Being a great public work, they prevailed on the Academy of Sciences to consider it. The members, who were competent judges, were instantly struck with the justness of Mr Moulineau's principles, and astonished that a thing so plain had not been long familiar to every house-carpenter. It quickly became an universal topic of conversation, dispute, and cabal, in the polite circles of Paris. But the Academy having given a very favourable report of their opinion, the project was immediately carried into execution, and soon completed, and now stands as one of the great exhibitions of Paris.

The construction of this dome is the simplest thing that can be imagined. The circular ribs which compose it consist of planks nine feet long, 13 inches broad, and three inches thick; and each rib consists of three of these planks bolted together in such a manner that two joints meet. A rib is begun, for instance, with a plank of three feet long standing between one of six feet and another of nine, and this is continued to the head of it. No machinery was necessary for carrying up such small pieces, and the whole went up like a piece of bricklayer's work. At various distances these ribs were connected horizontally by purlins and iron straps, which made so many hoops to the whole. When the work had reached such a height, that the distance of the ribs was two-thirds of the original distance, every third rib was discontinued, and the space was left open and glazed. When carried so much higher that the distance of the ribs is one-third of the original distance, every second rib (now consisting of two ribs very near each other) is in like manner discontinued, and the void is glazed. A little above this the heads of the ribs are framed into a circular ring of timber, which forms a wide opening in the middle; over which is a glazed canopy or umbrella, with an opening between it and the dome for allowing the heated air to get out. All who have seen this dome say, that it is the most beautiful and magnificent object they have ever beheld.

The only difficulty which occurs in the construction of wooden domes is, when they are unequally loaded, by carrying a heavy lantern or cupola in the middle. In such a case, if the dome were a mere shell, it would be crushed in at the top, or the action of the wind on the lantern might tear it out of its place. Such a dome must therefore consist of trussed frames. Mr Price has given a very good one in his plate OP, tho' much stronger in the trusses than there was any occasion for. This causes a great loss of room, and throws the lights of the lantern too far up. It is evidently copied from Sir Christopher Wren's dome of St Paul's church in London; a model of propriety in its particular situation, but by no means a general model of a wooden dome. It rests on the brick cone within it; and Sir Christopher has very ingeniously made use of it for stiffening this cone, as any intelligent person

Roof.

Roof. person will perceive by attending to its construction (See *Price*, Plate OP).

Fig. 28. represents a dome executed in the Register Office in Edinburgh by James and Robert Adams, and is very agreeable to mechanical principles. The span is 50 feet clear, and the thickness is only 4½.

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Further re-
marks on
Norman
roofs.

WE cannot take leave of the subject without taking some notice of what we have already spoken of with commendation by the name of *Norman roofs*. We called them *Norman*, because they were frequently executed by that people soon after their establishment in Italy and other parts of the south of Europe, and became the prevailing taste in all the great baronial castles. Their architects were rivals to the Saracens and Moors, who about that time built many Christian churches; and the architecture which we now call Gothic seems to have arisen from their joint labours.

The principle of a Norman roof is extremely simple. The rafters all butted on joggled king-posts AF, BG, CH, &c. (fig. 29.), and braces or ties were then disposed in the intervals. In the middle of the roof HB and HD are evidently ties in a state of extension, while the post CH is compressed by them. Towards the walls on each side, as between B and F, and between F and L, they are braces, and are compressed. The ends of the posts were generally ornamented with knots of flowers, embossed globes, and the like, and the whole texture of the truss was exhibited and dressed out.

This construction admits of employing very short timbers; and this very circumstance gives greater strength to the truss, because the angle which the brace or tie makes with the rafter is more open. We may also perceive that all thrust may be taken off the walls. If the pieces AF, BF, LF, be removed, all the remaining diagonal pieces act as ties, and the pieces directed to the centre act as struts; and it may also be observed, that the principle will apply equally to a straight or flat roof or to a floor. A floor such as *abc*, having the joint in two pieces *ab*, *bc*, with a strut *bd*, and two ties, will require a much greater weight to break it than if it had a continued joist *ac* of the same scantling. And, lastly, a piece of timber acting as a tie is much stronger than the same piece acting as a strut: for in the latter situation it is exposed to bending, and when bent it is much less able to withstand a very great strain. It must be acknowledged, however, that this advantage is balanced by the great inferiority of the joints in point of strength. The joint of a tie depends wholly on the pins; for this reason ties are never used in heavy works without strapping the joints with iron. In the roofs we are now describing the diagonal pieces of the middle part only act purely as ties, while those towards the sides act as struts or braces. Indeed they are seldom of so very simple construction as we have described, and are more generally constructed like the sketch in fig. 30. having two sets of rafters AB, *ab*, and the angles are filled up with thin planks, which give great stiffness and strength. They have also a double set of purlins, which connect the different trusses. The roof being thus divided into squares, other purlins run between the middle points E of the rafters. The rafter is supported at E by a check put between it and the under rafter. The middle point of each square of

the roof is supported and stiffened by four braces, one of which springs from *e*, and its opposite from the similar part of the adjoining truss. The other two braces spring from the middle points of the lower purlins, which go horizontally from *a* and *b* to the next truss, and are supported by planks in the same manner as the rafters. By this contrivance the whole becomes very stiff and strong.

We hope that the reader will not be displeased with our having taken some notice of what was the pride of our ancestors, and constituted a great part of the finery of the grand hall, where the feudal lord assembled his vassals and displayed his magnificence. The intelligent mechanic will see much to commend; and all who look at these roofs admire their apparent flimsy lightness, and wonder at their duration. We have seen a hall of 57 feet wide, the roof of which was in four divisions, like a kirb roof, and the trusses were about 16 feet asunder. They were single rafters, as in fig. 30. and their dimensions were only eight inches by six. The roof appeared perfectly sound, and had been standing ever since the year 1425.

Much of what has been said on this subject may be applied to the construction of wooden bridges and the centres for turning the arches of stone-bridges. But the farther discussion of this must be the employment of another article.

ROOFING, the materials of which the roof of a house is composed. See the foregoing article.

ROOK, in ornithology. See CORVUS.

Rooks are very destructive of corn, especially of wheat. They search out the lands where it is sown, and watching them more carefully than the owners, they perceive when the seed first begins to shoot up its blade; this is the time of their feeding on it. They will not be at the pains of searching for it at random in the sown land, for that is more trouble than so small a grain will require them for: but as soon as these blades appear, they are by them directed, without loss of time or pains, to the places where the grains lie; and in three or four days time they will root up such vast quantities, that a good crop is often thus destroyed in embryo. After a few days the wheat continuing to grow, its blades appear green above ground; and then the time of danger from these birds is over; for then the seeds are so far robbed of their mealy matter, that they are of no value to that bird, and it will no longer give itself the trouble to destroy them.

Wheat that is sown so early as to shoot up its green blades before the harvest is all carried in, is in no danger from these birds; because while it is in a state worth their searching for, the scattered corn in the harvest fields is easier come at, and they feed wholly on this, neglecting the sown grain. But as this cannot always be done, the farmers, to drive away these ravenous and mischievous birds, dig holes in the ground and stick up the feathers of rooks in them, and hang up dead rooks on sticks in several parts of the fields: but all this is of very little use; for the living rooks will tear up the ground about the feathers, and under the dead ones, to steal the seeds. A much better way than either is to tear several rooks to pieces, and to scatter the pieces over the fields; but this lasts but a little while, for the kites and other birds of prey soon carry off the pieces and feed upon them. A gun is a good remedy while

Roof
Rook

50
Conclud

oke: "while the person who has it is present; but as soon as he is gone, they will return with redoubled vigour to the field and tear up every thing before them.

The best remedy the farmer has is to watch well the time of the corn's being in the condition in which they feed upon it; and as this lasts only a few days, he should keep a boy in constant pay to watch the field from day-break till the dusk of the evening. Every time they settle upon the ground to fly over it, the boy is to holloa, and throw up a dead rook into the air: this will always make them rise; and by degrees they will be so tired of this constant disturbance, that they will seek out other places of preying, and will leave the ground even before the time of the corn's being unfit for them. The reason of their rising at the tossing up of their dead fellow-creature is, that they are a bird extremely apprehensive of danger, and they are always alarmed when one of their comrades rises. They take this for the rising of an out-bird, and all fly off at the signal.

ROOKE (Sir George), a gallant naval commander, born of an ancient and honourable family in Kent, in 1650. His merit raised him by regular steps to be vice-admiral of the blue: in which station he served in the battle of La Hogue, on the 22d of May 1692; when it was owing to his vigorous behaviour, that the last stroke was given on that important day, which threw the French entirely into confusion. But the next day he obtained still more glory; for he had orders to go into La Hogue, and burn the enemy's ships as they lay there. There were 13 large men of war, which had crowded as far up as possible; and the transports, tenders, and ammunition ships, were disposed in such a manner that it was thought impossible to burn them. Besides, the French camp was in sight, with all the French and Irish troops that were to have been employed in the invasion of England; and several batteries were raised on the coast, well provided with heavy artillery. The vice-admiral made the necessary preparations for obeying his orders, but found it impossible to carry in the ships of his squadron: he therefore ordered his light frigates to ply in close to the shore; and having manned out all his boats, went himself to give directions for the attack, burnt that very night six three-deck-ships, and the next day six more, from 76 to 60 guns, together with most of the transports and ammunition vessels; and this under the fire of all the batteries just mentioned, and in sight of all the French and Irish troops: yet this bold action cost the lives of no more than ten men. The vice-admiral's behaviour on this occasion appeared so great to King William, that having no opportunity at that time of promoting him, he settled a pension of 1000*l.* per annum on him for life; and afterwards going to Portsmouth to view the fleet, went on board Mr Rooke's ship, dined with him, and then conferred on him the honour of knighthood, he having a little before made him vice-admiral of the red.

In consequence of other services he was in 1694 raised to the rank of admiral of the blue: towards the close of the next year, he was admiral of the white; and was also appointed admiral and commander in chief in the Mediterranean.

During King William's reign, Sir George was twice elected member for Portsmouth; and upon the accession of George II.

of Queen Anne in 1702, he was constituted vice-admiral and lieutenant of the admiralty of England, as also lieutenant of the fleets and seas of this kingdom. Upon the declaration of war against France, he was ordered to command a fleet sent against Cadiz, the duke of Ormond having the command of the land forces. On his passage home, receiving an account that the galleons, under the escort of a strong French squadron, were got into the harbour of Vigo, he resolved to attack them; and on the 11th of October came before the harbour of Rondondello, where the French commander had neglected nothing necessary for putting the place into the best posture of defence. But notwithstanding this, a detachment of 15 English and 10 Dutch men of war, of the line of battle, with all the fire-ships, were ordered in; the frigates and bomb-vessels followed; the great ships moved after them, and the army landed near Rondondello. The whole service was performed under Sir George's directions, with admirable conduct and bravery; for, in short, all the ships were destroyed or taken, prodigious damage done to the enemy, and vast wealth acquired by the allies. For this action Sir George received the thanks of the House of Commons, a day of thanksgiving was appointed both by the queen and the states-general, and Sir George was promoted to a seat in the privy-council; yet, notwithstanding this, the House of Lords resolved to inquire into his conduct at Cadiz. But he so fully justified himself, that a vote was passed, approving his behaviour.

In the spring of the year 1704, Sir George commanded the ships of war which convoyed King Cha. III. of Spain to Lisbon. In July, he attacked Gibraltar; when, by the bravery of the English seamen, the place was taken on the 24th, though the town was extremely strong, well furnished with ammunition, and had 100 guns mounted, all facing the sea and the narrow passes to the land: An action which was conceived and executed in less than a week; though it has since endured sieges of many months continuance, and more than once baffled the united forces of France and Spain. This brave officer being at last obliged, by the prevalence of party-spirit, to quit the service of his country, retired to his seat in Kent; where he spent the remainder of his days as a private gentleman.

He was thrice married; and by his second lady Mrs Luttrell left one son. He died January 24. 1708-9; in his 58th year, and was buried in Canterbury cathedral, where a monument is erected to his memory. In his private life he was a good husband and a kind master, lived hospitably towards his neighbours, and left behind him a moderate fortune; so moderate, that when he came to make his will, it surprised those who were present: but Sir George assigned the reason in a few words, "I do not leave much (said he), but what I leave was honestly gotten; it never cost a sailor a tear, or the nation a farthing."

ROOM, a chamber, parlour, or other apartment in a house. See ARCHITECTURE and VENTILATION.

ROOT, among botanists, denotes that part of a plant which imbibes the nutritious juices of the earth, and transmits them to the other parts. See PLANT and RADIX.

Colours extracted from Roots. See COLOUR-Making, n° 41.

Rooke
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Root.

Root,
Rope-
making.

ROOT, in algebra and arithmetic, denotes any number which, multiplied by itself once or oftener, produces any other number; and is called the *square*, *cube*, *biquadrate*, &c. *root*, according to number of multiplications. Thus, 2 is the square-root of 4; the cube-root of 8; the biquadrate-root of 16, &c.

ROPE, is a word too familiar to need a definition; and we need say no more than that it is only applied to a considerable collection of twisted fibres. Smaller bands are called lines, strings, cords; and it is not applied with great propriety even to those, unless they are composed of smaller things of the same kind twisted together. Two hay bands twisted together would be called a *rope*. All the different kinds of this manufacture, from a fishing-line or whip-cord to the cable of a first rate ship of war, go by the general name of CORDAGE.

Ropes are made of every substance that is sufficiently fibrous, flexible, and tenacious, but chiefly of the barks of plants. The Chinese and other orientals even make them of the ligneous parts of several plants, such as certain bamboos and reeds, the stems of the aloes, the fibrous covering of the cocoa nut, the filaments of the cotton pod, and the leaves of some grasses, such as the sparte (*Lygeum*, Linn.) The aloe (*Agave*, Linn.) and the sparte exceed all others in strength. But the barks of plants are the most productive of fibrous matter fit for this manufacture. Those of the Linden tree, (*Teloa*), of the willow, the bramble, the nettle, are frequently used: but hemp and flax are of all others the best; and of these the hemp is preferred, and employed in all cordage exceeding the size of a line, and even in many of this denomination.

Hemp is very various in its useful qualities. These are great strength, and the length and fineness of the fibre. Being a plant of very greedy growth, it sucks up much of the unaltered juices of the soil, and therefore differs greatly according to its soil, climate, and culture. The best in Europe comes to us through Riga, to which port it is brought from very distant places to the southward. It is known by the name of *Riga rein* (that is, clean) hemp. Its fibre is not the longest (at least in the dressed state in which we get it) of all others, but it is the finest, most flexible, and strongest. The next to this is supposed to be the Peterburgh braak hemp. Other hems are esteemed nearly in the following order:—Riga outshot, Peterburgh outshot; hemp from Koningsburgh, Archangel, Sweden, Memel. *Chucking* is a name given to a hemp that comes from various places, long in the fibre, but coarse and harsh, and its strength is inferior to hems which one would think weaker. Its texture is such, that it does not admit splitting with the hatchet so as to be more completely dressed. It is therefore kept in its coarse form, and used for inferior cordage. It is however a good and strong hemp, but will not make fine work. There are doubtless many good hems in the southern parts of Europe, but little of them is brought to our market. Codilla, half clean, &c. are portions of the above-mentioned hems, separated by the dressing, and may be considered as broken fibres of those hems.

Only the first qualities are manufactured for the rigging of the royal navy and for the ships of the East India company.

ROPE-MAKING is an art of very great importance; and there are few that better deserve the attention of the intelligent observer. Hardly any art can be carried on without the assistance of the rope-maker. Cordage makes the very sinews and muscles of a ship; and every improvement which can be made in its preparation, either in respect to strength or pliability, must be of immense service to the mariner, and to the commerce and the defence of nations.

We shall give a very short account of the manufacture, which will not indeed fully instruct the artificers, but will give such a view of the process as shall enable the reader to judge, from principle, of the propriety of the different parts of the manipulation, and perceive its defects, and the means for removing them.

The aim of the rope-maker is to unite the strength of a great number of fibres. This would be done in the completest manner by laying the fibres parallel to each other, and fastening the bundle at the two ends: but this would be of very limited use, because the fibres are short, not exceeding three feet and a half at an average. They must therefore be entangled together, in such a manner that the strength of a fibre shall not be able to draw it out from among the rest of the bundle. This is done by twisting or twining them together, which causes them mutually to compress each other. When the fibres are so disposed in a long skain, that their ends succeed each other along its length, without many of them meeting in one place, and this skain is twisted round and round, we may cause them to compress each other to any degree we please, and the friction on a fibre which we attempt to pull out may be more than its cohesion can overcome. It will therefore break. Consequently, if we pull at this twisted skain, we will not separate it by drawing one parcel out from among the rest, but the whole fibres will break; and if the distribution of the fibres has been very equable, the skain will be nearly of the same strength in every part. If there is any part where many ends of fibres meet, the skain will break in that part.

We know very well that we can twist a skain of fibres so very hard, that it will break with any attempt to twist it harder. In this state all the fibres are already strained to the utmost of their strength. Such a skain of fibres can have no strength. It cannot carry a weight, because each fibre is already strained in the same manner as if loaded with as much weight as it is able to bear. What we have said of this extreme case is true in a certain extent of every degree of twist that we give the fibres. Whatever force is actually exerted by a twisted fibre, in order that it may sufficiently compress the rest to hinder them from being drawn out, must be considered as a weight hanging on that fibre, and must be deduced from its absolute strength of cohesion, before we can estimate the strength of the skain. The strength of the skain is the remainder of the absolute strength of the fibres, after we have deduced the force employed in twisting them together.

From this observation may be deduced a fundamental principle in rope-making, that all twisting, beyond what is necessary for preventing the fibres from being drawn out without breaking, diminishes the strength of the cordage, and should be avoided when in our power. It is of importance to keep this in mind.

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It is necessary then to twist the fibres of hemp together, in order to make a rope; but we should make a very bad rope if we contented ourselves with twisting together a bunch of hemp sufficiently large to withstand the strains to which the rope is to be exposed. As soon as we let it go out of our hands, it would untwist itself, and be again a loose bundle of hemp; for the fibres are strained, and they are in a considerable degree elastic; they contract again, and thus untwist the rope or skain. It is necessary to contrive the twist in such a manner, that the tendency to untwist in one part may act against the same tendency in another and balance it. The process, therefore, of rope-making is more complicated.

The first part of this process is **SPINNING OF ROPE-YARNS**. This is done in various ways, and with different machinery, according to the nature of the intended cordage. We shall confine our description to the manufacture of the larger kinds, such as are used for the standing and running rigging of ships.

An alley or walk is inclosed for the purpose, about 200 fathoms long, and of a breadth suited to the extent of the manufacture. It is sometimes covered above. At the upper end of this **ROPE-WALK** is set up the spinning-wheel, of a form resembling that in fig. 1. The band of this wheel goes over several rollers called **WHIRLS**, turning on pivots in brass holes. The pivots at one end come through the frame, and terminate in little hooks. The wheel being turned by a winch, gives motion in one direction to all those whirls. The spinner has a bundle of dressed hemp round his waist, with the two ends meeting before him. The hemp is laid in this bundle in the same way that women spread the flax on the distaff. There is great variety in this; but the general aim is to lay the fibres in such a manner, that as long as the bundle lasts there may be an equal number of the ends at the extremity, and that a fibre may never offer itself double or in a bight. The spinner draws out a proper number of fibres, twists them with his fingers, and having got a sufficient length detached, he fixes it to the hook of a whirl. The wheel is now turned, and the skain is twisted, becoming what is called a **ROPE-YARN**, and the spinner walks backwards down the rope-walk. The part already twisted draws along with it more fibres out of the bundle. The spinner aids this with his fingers, supplying hemp in due proportion as he walks away from the wheel, and taking care that the fibres come in equally from both sides of his bundle, and that they enter always with their ends, and not by the middle, which would double them. He should also endeavour to enter every fibre at the heart of the yarn. This will cause all the fibres to mix equally in making it up, and will make the work smooth, because one end of each fibre is by this means buried among the rest, and the other end only lies outward; and this, in passing through the grasp of the spinner, who presses it tight with his thumb and palm, is also made to lie smooth. The greatest fault that can be committed in spinning is to allow a small thread to be twisted off from one side of the hemp, and then to cover this with hemp supplied from the other side: for it is evident that the fibres of the central thread make very long spirals, and the skin of fibres which covers them must be much more oblique. This covering has but little connection with what is

below it, and will easily be detached. But even while it remains, the yarn cannot be strong; for on pulling it, the middle part, which lies the straightest, must bear all the strain, while the outer fibres, that are lying obliquely, are only drawn a little more parallel to the axis. This defect will always happen if the hemp be supplied in a considerable body to a yarn that is then spinning small. Into whatever part of the yarn it is made to enter, it becomes a sort of loosely connected wrapper. Such a yarn, when untwisted a little, will have the appearance of fig. 2. while a good yarn looks like fig. 3. A good spinner therefore endeavours always to supply the hemp in the form of a thin flat skain with his left hand, while his right is employed in grasping firmly the yarn that is twining off, and in holding it tight from the whirl, that it may not run into loops or kinks.

It is evident, that both the arrangement of the fibres and the degree of twisting depend on the skill and dexterity of the spinner, and that he must be instructed, not by a book, but by a master. The degree of twist depends on the rate of the wheel's motion, combined with the retrograde walk of the spinner.

We may suppose him arrived at the lower end of the walk, or as far as is necessary for the intended length of his yarn. He calls out, and another spinner immediately detaches the yarn from the hook of the whirl, gives it to another, who carries it aside to the reel, and this second spinner attaches his own hemp to the whirl hook. In the mean time, the first spinner keeps fast hold of the end of his yarn; for the hemp, being dry, is very elastic, and if he were to let it go out of his hand it would instantly untwist, and become little better than loose hemp. He waits, therefore, till he sees the reeler begin to turn the reel, and he goes slowly up the walk, keeping the yarn of an equal tightness all the way, till he arrives at the wheel, where he waits with his yarn in hand till another spinner has finished his yarn. The first spinner takes it off the whirl hook, joins it to his own, that it may follow it on the reel, and begins a new yarn.

Rope-yarns, for the greatest part of the large rigging, are from a quarter of an inch to somewhat more kinds of than a third of an inch in circumference, or of such a size that 160 fathoms weigh from $3\frac{1}{2}$ to 4 pounds when white. The different sizes of yarns are named from the number of them contained in a strand of a rope of three inches in circumference. Few are so coarse that 16 will make a strand of British cordage; 18 is not unfrequent for cable yarns, or yarns spun from harsh and coarse hemp; 25 is, we believe, the finest size which is worked up for the rigging of a ship. Much finer are indeed spun for sounding lines, fishing lines, and many other marine uses, and for the other demands of society. Ten good spinners will work up above 600 weight of hemp in a day; but this depends on the weather. In very dry weather the hemp is very elastic, and requires great attention to make smooth work. In the warmer climates, the spinner is permitted to moisten the rag with which he grasps the yarn in his right hand for each yarn. No work can be done in an open spinning walk in rainy weather, because the yarns would not take on the tar, if immediately tarred, and would rot if kept on the reel for a long time.

The second part of the process is the conversion of the

Rope-making.

Rope-making.
Method of converting the rope-yarns into ropes, cords, or lines.

the yarns into what may with propriety be called a rope, cord, or line. That we may have a clear conception of the principle which regulates this part of the process, we shall begin with the simplest possible case, the union of two yarns into one line. This is not a very usual fabric for rigging, but we select it for its simplicity.

When hemp has been split into very fine fibres by the hatchet, it becomes exceedingly soft and pliant, and after it has lain for some time in the form of fine yarn, it may be unreel and thrown loose, without losing much of its twist. Two such yarns may be put on the whirl of a spinning wheel, and thrown, like flaxen yarn, so as to make sewing thread. It is in this way, indeed, that the sailmaker's sewing thread is manufactured; and when it has been kept on the reel, or on balls or bobbins, for some time, it retains its twist as well as its uses require. But this is by no means the case with yarns spun for great cordage. The hemp is so elastic, the number of fibres twisted together is so great, and the diameter of the yarn (which is a sort of lever on which the elasticity of the fibre exerts itself) is so considerable, that no keeping will make the fibres retain this constrained position. The end of a rope-yarn being thrown loose, it will immediately untwist, and this with considerable force and speed. It would, therefore, be a fruitless attempt to twist two such yarns together; yet the ingenuity of man has contrived to make use of this very tendency to untwist not only to counteract itself, but even to produce another and a permanent twist, which requires force to undo it, and which will recover itself when this force is removed. Every person must recollect that, when he has twisted a packthread very hard with his fingers between his two hands, if he slackens the thread by bringing his hands nearer together, the packthread will immediately curl up, running into loops or kinks, and will even twist itself into a neat and firm cord. Familiar as this fact is, it would puzzle any person not accustomed to these subjects to explain it with distinctness. We shall consider it with some care, not as a piece of mechanical curiosity, but as a fundamental principle in this manufacture, which will give us clear instructions to direct us in the most delicate part of the whole process. And we beg the attention of the artists themselves to a thing which they seem to have overlooked.

Let md , nd (fig. 4.) be two yarns fixed to one point d , and let both of them be twisted, each round its own axis, in the direction abc , which will cause the fibres to lie in a screw form, as represented in the figure. If the end d of the yarn md were at liberty to turn round the point d , it would turn accordingly, as often as the end m is turned round, and the yarn would acquire no twist; but being attached to some solid body it cannot turn without turning this body. It has, however, this tendency, and the body must be forcibly prevented from turning. If it be held fast for a time, and then let go, it will be turned round, and it will not stop till it has turned as often as the end m has been twisted, and now all the twist will be undone. Thus it is the tendency of the yarn md to untwist at the end d (because it is kept fast at m), which produces this motion of the body attached to it at d . What we have said of the yarn md is equally true of the yarn nd . Both tend to turn, and will turn, the body attached at d round the common axis, in the same direc-

tion in which they are twisted. Let fig. 5. be supposed a cross section of the two yarns touching each other at d , and there glued to a board. The fibres of each pull obliquely, that is, they both pull away from the board, and pull laterally. The direction of this lateral pull of the fibres in the circumference of each yarn is represented by the little darts drawn round the circumferences. These actions directly oppose and balance each other at d ; but in the semicircles *oet*, *ifo*, they evidently conspire to turn the board round in the same direction. The same may be said of the outer halves of any circles described within these. In the inner halves of these inner circles the actions of some fibres oppose each other; but in every circle there are many more conspiring actions than opposing ones, and the conspiring actions exert themselves by longer levers, so that their joint momentum greatly exceeds that of the opposing forces. It may be demonstrated, that if all the fibres exert equal forces, the force which tends to turn the board round the common axis is $\frac{2}{3}$ of the force employed to twist both the yarns.

Suppose then that the solid body to which the yarns are attached is at liberty to turn round the common axis; it cannot do this without carrying the yarns round with it. They must, therefore, turn round each other, and thus compose a rope or cord kl , having its component yarns (now called *strands*) lying in a direction opposite to that of the fibres in each strand. The rope will take this twist, while each of the strands is really untwisting, and the motion will not stop till all is again in equilibrio. If the yarns had no diameter and no rigidity, their elastic contraction would not be balanced till the cord had made half the number of turns which had been given to that part of the yarn which is thus doubled up. But, as the yarns have a sensible diameter, the same ultimate contraction of the fibres will be expended by the twisting of the cord in fewer turns, even if the yarns had no rigidity. The turns necessary for this purpose will be so much fewer, in proportion to the twist of the yarns, as the fibres of the yarn lie more obliquely, that is, as the yarns are more twisted. But further, this contractile force has to overcome the rigidity or stiffness of the yarns. This requires force merely to bend it into the screw form; and therefore, when all is again at rest, the fibres are in a state of strain, and the rope is not so much closed by doubling as it would have been had the yarns been softer. If any thing can be done to it in this state which will soften the yarns, it will twist itself more up. It has therefore a tendency to twist more up; and if this be aided by an external force which will bend the strands, this will happen. Beating it with a soft mallet will have this effect; or, if it be forcibly twisted till the fibres are allowed to contract as much as they would have done had the yarn been perfectly soft, the cord will keep this twist without any effort; and this must be considered as its most perfect state, in relation to the degree of twist originally given to the yarns. It will have no tendency to run into kinks, which is both troublesome and dangerous, and the fibres will not be exerting any useless effort.

To attain this state should therefore be the aim of every part of this second process; and this principle should be kept in view through the whole of it.

The component parts of a rope are called strands, as

has been already observed; and the operation of uniting them with a permanent twist is called *laying* or *clofing*, the latter term being chiefly appropriated to cables and other very large cordage.

Lines and cordage less than $1\frac{1}{2}$ inches circumference are laid at the spinning-wheel. The workman fastens the ends of each of two or three yarns to separate whirl-hooks. The remote ends are united in a knot. This is put on one of the hooks of a swivel called the *loper*, represented in fig. 6. and care is taken that the yarns are of equal lengths and twist. A piece of soft cord is put on the other hook of the loper; and, being put over a pulley several feet from the ground, a weight is hung on it, which stretches the yarn. When the workman sees that they are equally stretched, he orders the wheel to be turned in the same direction as when twining the yarns. This would twine them harder; but the swivel of the loper gives way to the strain, and the yarns immediately twist around each other, and form a line or cord. In doing this the yarns lose their twist. This is restored by the wheel. But this simple operation would make a very bad line, which would be slack, and would not hold its twist; for, by the turning of the loper, the strands twist immediately together, to a great distance from the loper. By this turning of the loper the yarns are untwisted. The wheel restores their twist only to that part of the yarns that remains separate from the others, but cannot do it in that part where they are already twined round each other, because their mutual pressure prevents the twist from advancing. It is, therefore, necessary to retard this tendency to twine, by keeping the yarns apart. This is done by a little tool called the *top*, represented in fig. 7.

It is a truncated cone, having three or more notches along its sides, and a handle called the staff. This is put between the strands, the small end next the loper, and it is pressed gently into the angle formed by the yarns which lie in the notches. The wheel being now turned, the yarns are more twisted, or *hardened up*, and their pressure on the top gives it a strong tendency to come out of the angle, and also to turn round. The workman does not allow this till he thinks the yarns sufficiently hardened. Then he yields to the pressure, and the top comes away from the swivel, which immediately turns round, and the line begins to lay. Gradually yielding to this pressure, the workman slowly comes up towards the wheel, and the laying goes on, till the top is at last close to the wheel, and the work is done. In the mean time, the yarns are shortened, both by the twining of each and the laying of the cord. The weight, therefore, gradually rises. The use of this weight is evidently to oblige the yarn to take a proper degree of twist, and not run into kinks.

A cord or line made in this way has always some tendency to twist a little more. However little friction there may be in the loper, there is some, so that the turns which the cord has made in the laying are not enough to balance completely the elasticity of the yarns; and the weight being appended causes the strands to be more nearly in the direction of the axis, in the same manner as it would stretch and untwist a little any rope to which it is hung. On the whole, however, the twist of a laid line is permanent, and not like that upon thread doubled or thrown in a mill, which remains only

in consequence of the great softness and flexibility of the yarn. Rope-making.

The process for laying or clofing large cordage is considerably different from this. The strands of which the rope is composed consist of many yarns, and require a considerable degree of hardening. This cannot be done by a whirl driven by a wheel-band; it requires the power of a crank turned by the hand. The strands, when properly hardened, become very stiff, and when bent round the top are not able to transmit force enough for laying the heavy and unpliant rope which forms beyond it. The elastic twist of the hardened strands must, therefore, be assisted by an external force. All this requires a different machinery and a different process.

At the upper end of the walk is fixed up the *tackle-board*, fig. 8. This consists of a strong oaken plank called a *breast-board*, having three or more holes in it, such as A, B, C, fitted with brads or iron plates. Into these are put iron cranks, called *heavers*, which have hooks, or forelocks, and keys, on the ends of their spindles. They are placed at such a distance from each other, that the workmen do not interfere with each other while turning them round. This breast-board is fixed to the top of strong posts well secured by struts or braces facing the lower end of the walk. At the lower end is another breast-board fixed to the upright posts of a sledge, which may be loaded with stones or other weights. Similar cranks are placed in the holes of this breast-board. The whole goes by the name of the *sledge*; (see fig. 9.) The top necessary for clofing large cordage is too heavy to be held in the hand. It therefore has a long staff, which has a truck on the end. This rests on the ground; but even this is not enough in laying great cables. The top must be supported on a carriage, as shown in fig. 10. where it must lie very steady, and need no attendance, because the master workman has sufficient employment in attending to the manner in which the strands close behind the top, and in helping them by various methods. The top is, therefore, fixed to the carriage by lashing its staff to the two upright posts. A piece of soft rope, or strap, is attached to the handle of the top by the middle, and its two ends are brought back and wrapped several times tight round the rope, in the direction of its twist, and bound down. This is shown at W, and it greatly assists the laying of the rope by its friction. This both keeps the top from flying too far from the point of union of the strands, and brings the strands more regularly into their places.

The first operation is *warping* the yarns. At each end of the walk are frames called *warping frames*, which carry a great number of reels or winches filled with rope-yarn. The foreman of the walk takes off a yarn end from each, till he has made up the number necessary for his rope or strand, and bringing the ends together, he passes the whole through an iron ring fixed to the top of a stake driven into the ground, and draws them through: then a knot is tied on the end of the bundle, and a workman pulls it through this ring till the intended length is drawn off the reels. The end is made fast at the bottom of the walk, or at the sledge, and the foreman comes back along the skain of yarns, to see that none are hanging slackier than the rest. He takes

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takes up in his hand such as are slack, and draws them tight, keeping them so till he reaches the upper end, where he cuts the yarns to a length, again adjusts their tightness, and joins them all together in a knot, to which he fixes the hook of a tackle, the other block of which is fixed to a firm post, called the *warping-post*. The strain is well stretched by this tackle, and then separated into its different strands. Each of these is knotted apart at both ends. The knots at their upper ends are made fast to the hooks of the cranks in the tackle-board, and those at their lower ends are fastened to the cranks in the sledge. The sledge itself is kept in its place by a tackle, by which the strands are again stretched in their places, and every thing adjusted, so that the sledge stands square on the walk, and then a proper weight is laid on it. The tackle is now cut off, and the cranks are turned at both ends, in the contrary direction to the twist of the yarns. (In some kinds of cordage the cranks are turned the same way with the spinning twist). By this the strands are twisted and hardened up; and as they contract by this operation, the sledge is dragged up the walk. When the foreman thinks the strands sufficiently hardened, which he estimates by the motion of the sledge, he orders the heavers at the cranks to stop. The middle strand at the sledge is taken off from the crank. This crank is taken out, and a stronger one put in its place at D, fig. 9. The other strands are taken off from their cranks, and all are joined on the hook which is now in the middle hole. The top is then placed between the strands, and, being pressed home to the point of their union, the carriage is placed under it, and it is firmly fixed down. Some weight is taken off the sledge. The heavers now begin to turn at both ends. Those at the tackle-board continue to turn as they did before; but the heavers at the sledge turn in the opposite direction to their former motion, so that the cranks at both ends are now turning one way. By the motion of the sledge crank the top is forced away from the knot, and the rope begins to close. The heaving at the upper end restores to the strand the twist which they are constantly losing by the laying of the rope. The workmen judge of this by making a chalk mark on intermediate points of the strands, where they lie on the stakes which are set up along the walk for their support. If the twist of the strands is diminished by the motion of closing, they will ling then, and the chalk mark will move away from the tackle-board: but if the twist increases by turning the cranks at the tackle-board, the strands will shorten, and the mark will come nearer to it.

As the closing of the rope advances, the whole shortens, and the sledge is dragged up the walk. The top moves faster, and at last reaches the upper end of the walk, the rope being now laid. In the mean time, the sledge has moved several fathoms from the place where it was when the laying began.

These motions of the sledge and top must be exactly adjusted to each other. The rope must be of a certain length. Therefore the sledge must stop at a certain place. At that moment the rope should be laid; that is, the top should be at the tackle-board. In this consists the address of the foreman. He has his attention directed both ways. He looks at the strands, and when he sees any of them hanging slack between the stakes than the others, he calls to the heavers at the tackle-

board to heave more upon that strand. He finds it more difficult to regulate the motion of the top. It requires a considerable force to keep it in the angle of the strands, and it is always disposed to start forward. To prevent or check this, some straps of soft rope are brought round the staff of the top, and then wrapped several times round the rope behind the top, and kept firmly down by a lanyard or bandage, as is shown in the figure. This both holds back the top and greatly assists the laying of the rope, causing the strands to fall into their places, and keep close to each other. This is sometimes very difficult, especially in ropes composed of more than three strands. It will greatly improve the laying the rope; if the top have a sharp, smooth, tapering pin of hard wood, pointed at the end, projecting so far from the middle of its smaller end, that it gets in between the strands which are closing. This supports them, and makes their closing more gradual and regular. The top, its notches, the pin, and the warp or strap, which is lapped round the rope, are all smeared with grease or soap to assist the closing. The foreman judges of the progress of closing chiefly by his acquaintance with the walk, knowing that when the sledge is abreast of a certain stake the top should be abreast of a certain other stake. When he finds the top too far down the walk, he slackens the motion at the tackle-board, and makes the men turn briskly at the sledge. By this the top is forced up the walk, and the laying of the rope accelerates, while the sledge remains in the same place, because the strands are losing their twist, and are lengthening, while the closed rope is shortening. When, on the other hand, he thinks the top too far advanced, and fears that it will be at the head of the walk before the sledge has got to its proper place, he makes the men heave briskly on the strands, and the heavers at the sledge crank to work softly. This quickens the motion of the sledge by shortening the strands; and by thus compensating what has been overdone, the sledge and top come to their places at once, and the work appears to answer the intention.

But this is a bad manner of proceeding. It is evident, that if the strands be kept to one degree of hardness throughout, and the heaving at the sledge be uniformly continued, the rope will be uniform. It may be a little longer or shorter than was intended, and the laying may be too hard in proportion to the twist of the strands, in which case it will not keep it; or it may be too slack, and the rope will tend to twist more. Either of these faults are discoverable by slackening the rope before it come off the hooks, and it may then be corrected. But if the error in one place be compensated by that in another, this will not be easily seen before taking off the hooks; and if it is a large and stiff rope, it will hardly ever come to an equable state in its different parts, but will be apt to run into loops during service.

It is, therefore, of importance to preserve the uniformity throughout the whole. Mr Du Hamel, in his great work on rope-making, proposes a method which is very exact, but requires an apparatus which is cumbersome, and which would be much in the way of the workmen. We think that the following method would be extremely easy, embarrass no one, and is perfectly exact. Having determined the proportion between the velocity of the top and sledge, let the diameter of the

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truck of the top carriage be to that of another truck fixed to the sledge, in the proportion of the velocity of the top to that of the sledge. Let a mark be made on the rim of each; let the man at the sledge make a signal every time that the mark on the sledge truck is uppermost. The mark on the carriage truck should be uppermost at the same instant; and in this way the foreman knows the state of the rope at all times without quitting his station. Thus, in making a cable of 120 fathoms, it is usual to warp the yarns 180 fathoms, and to harden them up to 140 before closing. Therefore, in the closing, the top must move 140 fathoms, and the sledge only 20. The diameter of the carriage truck should therefore be seven times the diameter of the sledge truck.

We have hitherto proceeded on the supposition, that the twist produced by the cranks is propagated freely along the strands and along the closing rope. But this is not the case. It is almost unavoidable that the twist is greater in the neighbourhood of the crank which produces it. The strands are frequently of very considerable weight, and lie heavy on the stakes. Force is therefore necessary to overcome their friction, and it is only the overplus that is propagated beyond the stake. It is proper to lift them up from time to time, and let them fall down again, as the sawer does with his marking line. This helps the twist to run along the strand. But this is not enough for the closed rope, which is of much greater weight, and much stiffer. When the top approaches the tackle-board, the heaving at the sledge could not cause the strands immediately behind the top to close well, without having previously produced an extravagant degree of twist in the intermediate rope. The effort of the crank must therefore be assisted by men stationed along the rope, each furnished with a tool called a *woolder*. This is a stout oak stick about three feet long, having a strap of soft rope-yarn or cordage fastened on its middle or end. The strap is wrapped round the laid rope, and the workman works with the stick as a lever, twisting the rope round in the direction of the crank's motion. The woolders should keep their eye on the men at the crank, and make their motion correspond with his. Thus they send forward the twist produced by the crank, without either increasing or diminishing it, in that part of the rope which lies between them and the sledge.

It is usual before taking the rope from the hooks to heave a while at the sledge end, in order to harden the rope a little. They do this so as to take it up about $\frac{1}{8}$. The propriety or impropriety of this practice depends entirely on the proportion which has been previously observed between the hardening of the strands and the twisting of the closing rope. It is, in all cases, better to adjust these precisely, and then nothing remains to be done when the top has arrived at the upper end of the walk. The making of two strand and three strand line pointed out the principle which should be attended to in this case; namely, that the twist given to the rope in laying should be precisely what a perfectly soft rope would give to itself. We do not see any reason for thinking that the proportion between the number of turns given to the strands and the number of turns given to the laid line by its own elasticity, will vary by any difference of diameter. We would therefore recommend to the artists to settle this proportion

by experiment. The line should be made of the finest, smallest, and softest threads or yarn. These should be made into strands, and the strands should be hardened up in the direction contrary to the spinning twist. The rope should then be laid, hanging perpendicularly, with a small weight on the top to keep it down, and a very small weight at the end of the rope. The number of turns given to the strands should be carefully noticed, and the number of turns which the rope takes of itself in closing. The weight should then be taken off, and the rope will make a few turns more. This whole number will never exceed what is necessary for the equilibrium; and we imagine it will not fall much short of it. We are clearly of opinion an exact adjustment of this particular will tend greatly to improve the art of rope-making, and that experiments on good principles for ascertaining this proportion would be highly valuable, because there is no point about which the artists themselves differ more in their opinions and practice.

The cordage, of which we have been describing the manufacture, is said to be *HAWSER-LAID*. It is not uncommon to make ropes of four strands. These are used for shrouds, and this cordage is therefore called *SHROUD-LAID* cordage. A rope of the same size and weight must be smoother when it has four strands, because the strands are smaller: but it is more difficult to lay close. When three cylindrical strands are simply laid together, they leave a vacuity at the axis amounting to $\frac{1}{8}$ of the section of a strand. This is to be filled up by compressing the strands by twisting them. Each must fill up $\frac{1}{8}$ of it by changing its shape; and $\frac{1}{8}$ of this change is made on each side of the strand. The greatest change of shape therefore made on any one part of a strand amounts only to $\frac{1}{16}$ of the section of the strand. The vacuity between four cylinders is $\frac{1}{4}$ of one of them. This being divided into eight parts, is $\frac{1}{32}$ of a strand, and is the greatest compression which any part of it has to undergo. This is nearly five times greater than the former, and must be more difficult to produce. Indeed it may be seen by looking at the figures 11. and 12. that it will be easier to compress a strand into the obtuse angle of 120 degrees than into the right angle of 90; and without reasoning more about the matter, it appears that the difficulty will increase with the number of strands. Six strands must touch each other, and form an arch leaving a hollow in the middle, into which one of the strands will slip, and then the rest will not completely surround it. Such a rope would be uneven on the surface. It would be weak; because the central strand would be slack in comparison of the rest, and would not be exerting its whole force when they are just ready to break. We see then that a four strand rope must be more difficult to lay well than a hawser-laid rope. With care, however, they may be laid well and close, and are much used in the royal navy.

Ropes are made of four strands, with a heart or strand in the middle. This gives no additional strength, for the reason just now given. Its only use is to make the work better and more easy, and to support all the strands at the same distance from the axis of the rope. This is of great consequence; because when they are at unequal distances from the axis, some must be more sloping than others, and they will not resist alike. This heart

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Mode of
making
shroud-laid
cordage
of four
strands.16
And with
a heart in
the middle.

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heart is made of inferior stuff, slack laid, and of a size just equal to the space it is to fill. When a rope of this fabric has been long used and become unserviceable, and is opened out, the heart is always found cut and chafed to pieces, like very short oakum. This happens as follows: When the rope is violently strained, it stretches greatly; because the strands surround the axis obliquely, and the strain draws them into a position more parallel to the axis. But the heart has not the obliquity of parts, and cannot stretch so much; at the same time, its yarns are firmly grasped by the hard strands which surround them; they must therefore be torn into short pieces.

The process for laying a rope with a heart is not very different from that already described. The top has a hole pierced through it, in the direction of the axis. The skin or strand intended for the heart passes through this hole, and is stretched along the walk. A boy attends it, holding it tight as it is taken into the closing rope. But a little attention to what has been said will show this method to be defective. The wick will have no more turns than the laid rope; and as it lies in the very axis, its yarns will be much straighter than the strands. Therefore when the rope is strained and stretched, the wick cannot stretch as much as the laid strands; and being firmly grasped by them, it must break into short pieces, and the strands, having lost their support in those places, will sink in, and the cordage grow loose. We should endeavour to enable all to stretch alike. The wick therefore should be twisted in the same manner as the strands, perhaps even a little more. It will thus communicate part of its strength to the rope. Indeed it will not be so uniformly solid, and may chance to have three spiral vacuities. But that this does no harm, is quite evident from the superior strength of cable-laid cordage, to be described presently, which have the same vacuities. In this way are the main and fore stays made for ships of the line. They are thought stronger than hawser-laid ropes, but unfit for running rigging; because their strands are apt to get out of their places when the rope is drawn into loops. It is also thought that the heart retains water, rots, and communicates its putrefaction to the surrounding strands.

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Recapitulation.

Such is the general and essential process of rope-making. The fibres of hemp are twisted into yarns, that they may make a line of any length; and stick among each other with a force equal to their own cohesion. The yarns are made into cords of permanent twist by laying them; and, that we may have a rope of any degree of strength, many yarns are united in one strand, for the same reason that many fibres were united in one yarn; and in the course of this process it is in our power to give the rope a solidity and hardness which makes it less penetrable by water, which would rot it in a short while. Some of these purposes are inconsistent with others; and the skill of a rope-maker lies in making the best compensation; so that the rope may on the whole be the best in point of strength, pliancy, and duration, that the quantity of hemp in it can produce.

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Mode of making cable-laid cordage.

There is another species of cordage in very general use. A rope of two or more strands may be used as a strand, in order to compose a still larger rope; and in this manner are cables and other ground tackle com-

monly made; for this reason such cordage is called CABLE-LAID cordage.

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The process of cable-laying hardly differs from that of hawser-laying. Three ropes, in their state of permanent twist, may be twisted together; but they will not hold it, like fine thread, because they are stiff and elastic. They must therefore be treated like strands for a hawser. We must give them an *additional* twist, which will dispose them to lay or close themselves; and this disposition must be aided by the workmen at the sledge. We say the twist should be an addition to their twist as a rope. A twist in the opposite direction will indeed give them a disposition to close behind the top; but this will be very small, and the ropes (now strands) will be exceedingly open, and will become more open in laying. The twist is therefore given in the direction of their twist as a rope, or opposite to that of the primary strands, of which the ropes are composed. These primary strands are therefore partly untwisted in cable-laying a rope, in the same manner as the yarns are untwisted in the usual process of rope-making.

We need not insist farther on this part of the manufacture. The reader must be sensible that the hawsers intended for strands of a cable must not be so much twisted as those intended to remain hawsers; for the twist given to a finished hawser is presumed to be that which renders it most perfect, and it must be injured by any addition. The precise proportion, and the distribution of the working up between the hardening of the strands and closing the cable, is a subject about which the artists are no better agreed than in the case of hawser-laid cordage. We did not enter on this subject while describing the process, because the introduction of reasonings and principles would have hurt the simplicity of the description. The reader being now acquainted with the different parts of the manipulation, and knowing what can be done on any occasion, will now be able to judge of the propriety of the whole, when he learns the principle on which the strength of a rope depends.

We have already said, that a rope-yarn should be twisted till a fibre will break rather than be pulled out from among the rest, and that all twisting beyond this is injurious to the strength of the yarn: And we advanced this maxim upon this plain consideration, that it is needless to bind them closer together, for they will already break rather than come out; and because this closer binding is produced only by forcibly wrapping the outer fibres round the inner, and drawing the outer ones tight. Thus these fibres are on the stretch, and are strained as if a weight were hung on each of them. The process of laying lines, of a permanent twist, shows that we must do a little more. We must give the yarn a degree of elastic contractility, which will make it lay itself and form a line or cord which will retain its twist. This must leave the fibres of the yarns in a state of greater compression than is necessary for just keeping them together. But more than this seems to be needless and hurtful. The same maxim must direct us in forming a rope consisting of strands, containing more than one yarn. A needless excess of twist leaves them strained, and less able to perform their office in the rope.

It not unfrequently happens, that the workman, in order to make his rope solid and firm, hardens up the

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Mode of estimating the strength of ropes.

Rope-making.

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strength
ropes,

the strands till they really break: and we believe that, in the general practice of making large hawsers, many of the outer yarns in the strands, especially those which chance to be outermost in the laid rope, and are therefore most strained, are broken during the operation.

But there is another consideration which should also make us give no greater twist in any part of the operation than is absolutely necessary for the firm cohesion of the parts, and this independent of the strain to which the fibres or yarns are subjected. Twisting causes all the fibres to lie obliquely with respect to the axis or general direction of the rope. It may just happen that one fibre or one yarn shall keep in the axis, and remain straight; all the rest must be oblique, and the more oblique as they are farther from the axis, and as they are more twisted. Now it is to be demonstrated, that when any strain is given to the rope in the direction of its length, a strain greater than this is actually excited on the oblique fibres, and so much the greater as they are more oblique; and thus the fibres which are already the weakest are exposed to the greatest strains.

Let CF (fig. 13.) represent a fibre hanging from a hook, and loaded with a weight F, which it is just able to bear, but not more. This weight may represent the absolute force of the fibre. Let such another fibre be laid over the two pulleys A, B (fig. 14.), which are in a horizontal line AB, and let weights F and f , equal to the former, be hung on the ends of this fibre, while another weight R, less than the sum of F and f , is hung on the middle point C by a hook or thread. This weight will draw down the fibre into such a position ACB, that the three weights F, R, and f , are in equilibrio by the intervention of the fibre. We affirm that this weight R is the measure of the relative strength of the fibre in relation to the form ACB; for the fibre is equally stretched in all its parts, and therefore in every part it is strained by the force F. If therefore the weights F and f are held fast, and any addition is made to the weight R, the fibre must break; being already strained to its full strength; therefore R measures its strength in relation to its situation. Complete the parallelogram ACBD, and draw the diagonal CD; because AB is horizontal, and $AC=BC$, DC is vertical, and coincides with the direction CR, by which the weight R acts. The point C is drawn by three forces, which are in equilibrio. They are therefore proportional to the sides of a triangle, which have the same directions; or, the force acting in the direction CA is to that acting in the direction CR as CA to CD. The point R is supported by the two forces CA, CB, which are equivalent to CD; and therefore the weight F is to the weight R as CA is to CD. Therefore the absolute strengths of the two fibres AC, BC, taken separately, are greater than their united strengths in relation to their position with respect to CR: and since this proportion remains the same, whatever equal weights are hung on at F and f , it follows, that when any strain DC is made to act on this fibre in the direction DC, it excites a greater strain on the fibre, because CA and CB taken together are greater than CD. Each fibre sustains a strain greater than the half of CD.

Now let the weight R be turned round the axis CR. This will cause the two parts of the fibre ACB to lap round each other, and compose a twisted line or cord

CR, as in fig. 15. and the parallelogram ACBD will remain of the same form, by the yielding of the weights F and f , as is evident from the equilibrium of forces. The fibre will always assume that form which makes the sides and diagonal in the proportion of the weights. While the fibres lap round each other, they are strained to the same degree, that is, to the full extent of their strength, and they remain in this degree of strain in every part of the line or cord CR. If therefore each of the fibres has the strength AB, the cord has the strength DC; and if F and f be held fast, the smallest addition to R will break the cord. The sum of the absolute strength of the two fibres of which this thread is composed is to the sum of their relative strengths, or to the strength of the thread, as $AC+CB$ is to CD, or as AC is to EC.

If the weights F and f are not held fast, but allowed to yield, a heavier weight r may be hung on at C without breaking the fibre; for it will draw it into another position $A'CB'$, such that r shall be in equilibrio with F and f . Since F and f remain the same, the fibre is as much strained as before. Therefore make ca , cb equal to CA and CB, and complete the parallelogram $acbd$. cd will now be the measure of the weight r , because it is the equivalent of ca and cb . It is evident that cd is greater than CD, and therefore the thread formed by the lapping of the fibre in the position acb is stronger than the former, in the proportion of cd to CD, or ce to CE. The cord is therefore so much stronger as the fibres are more parallel to the axis, and it must be strongest of all when they are quite parallel. Bring the pulleys A, B close to each other. It is plain that if we hang on a weight R less than the sum of F and f , it cannot take down the bight of the fibre; but if equal to them, although it cannot pull it down, it will keep it down. In this case, when the fibres are parallel to each other, the strength of the cord (improperly so called) is equal to the united absolute strengths of the fibres.

It is easy to see that the length of each of the fibres which compose any part CR of this cord is to the length of the part of the cord as AC to EC; and this is the case even although they should lap round a cylinder of any diameter. This will appear very clearly to any person who considers the thing with attention. Let ac (fig. 16.) be an indefinitely small portion of the fibre which is lapped obliquely round the cylinder, and let HKG be a section perpendicular to the axis. Draw ae parallel to the axis, and draw ec to the centre of the circle HKG, and ae' parallel to ec . It is plain that ec is the length of the axis corresponding to the small portion ac , and that ec is equal to ae .

Hence we derive another manner of expressing the ratio of the absolute and relative strength; and we may say that the absolute strength of a fibre, which has the same obliquity throughout, is to its relative strength as the length of the fibre to the length of the cord of which it makes a part. And we may say, that the strength of a rope is to the united absolute strength of its yarns as the length of the cord to the length of the yarns; for although the yarns are in various states of obliquity, they contribute to the strength of the cord in as much as they contribute immediately to the strength of the strands. The strength of the yarns is to that of the strands as the length of the yarns to that of the

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strands, and the strength of the strands is to that of the rope as the length of the first to that of the last.

And thus we see that twisting the fibres diminishes the strength of the assemblage; because their obliquity, which is its necessary consequence, enables any external force to excite a greater strain on the fibres than it could have excited had they remained parallel; and since a greater degree of twisting necessarily produces a greater obliquity of the fibres, it must more remarkably diminish the strength of the cord. Moreover, since the greater obliquity cannot be produced without a greater strain in the operation of twisting, it follows, that immoderate twisting is doubly prejudicial to the strength of cordage.

21
Theoretical deductions confirmed by Reaumur's experiments.

These theoretical deductions are abundantly confirmed by experiment; and as many persons give their assent more readily to a general proposition when presented as an induction from unexceptionable particulars, than when offered as the consequence of uncontroverted principles, we shall mention some of the experiments which have been made on this subject. Mr Reaumur, one of the most zealous, and at the same time judicious, observers of nature made the following experiments. (*Mem. Acad. Paris*, 1711.)

1. A thread, consisting of 832 fibres of silk, each of which carried at a medium 1 dram and 18 grains, would hardly support $5\frac{1}{2}$ pounds, and sometimes broke with 5 pounds. The sum of the absolute strengths of the fibres is 1040 drams, or upwards of 8 pounds 2 ounces.

2. A skain of white thread was examined in many places. Every part of it bore $9\frac{1}{2}$ pounds, but none of it would bear 10. When twisted slack into a cord of 2 yarns it broke with 16 pounds.

3. Three threads were twisted together. Their mean strength was very nearly 8 pounds. It broke with $17\frac{1}{2}$, whereas it should have carried 24.

4. Four threads were twisted. Their mean strength was $7\frac{1}{2}$. It broke with $21\frac{1}{2}$ instead of 30. Four threads, whose strength was nearly 9 pounds, broke with 22 instead of 36.

5. A small and very well made hempen cord broke in different places with 58, 63, 67, 72 pounds. Another part of it was untwisted into its three strands. One of them bore $29\frac{1}{2}$, another $33\frac{1}{2}$, and the third 35; therefore the sum of their absolute strengths was 98. In another part which broke with 72, the strands which had already borne this strain were separated. They bore 26, 28, and 30; the sum of which is 84.

22
And by those of Sir C. Knowles.

The late admiral Sir Charles Knowles made many experiments on cordage of size. A piece of rope $3\frac{1}{2}$ inches in circumference was cut into many portions. Each of these had a fathom cut off, and it was carefully opened out. It was white, or untarred, and contained 72 yarns. They were each tried separately, and their mean strength was 90 pounds. Each corresponding piece of rope was tried apart, and the mean strength of the nine pieces was 4552 pounds. But 90 times 72 is 6480.

23
Further remarks on twisting.

Nothing is more familiarly known to a seaman than the superior strength of rope-yarns made up into a skain without twisting. They call such a piece of rope a SALVAGE. It is used on board the king's ships for rolling tackles, slinging the great guns, butt-slings, nippers for holding the viol on the cable, and in every

service where the utmost strength and great pliancy are wanted.

It is therefore sufficiently established, both by theory and observation, that the twisting of cordage diminishes its strength. Experiments cannot be made with sufficient precision for determining whether this diminution is in the very proportion, relative to the obliquity of the fibres, which theory points out. In a hawser the yarns lie in a great variety of angles with the axis. The very outermost yarn of a strand is not much inclined to the axis of the rope: for the inclination of this yarn to the axis of its own strand nearly compensates for the inclination of the strand. But then the opposite yarn of the same strand, the yarn that is next the axis of the rope lies with an obliquity, which is the sum of the obliquities of the strand and of the yarn. So that all the yarns which are really in the axis of the rope are exceedingly oblique, and, in general, the inside of the rope has its yarns more oblique than the outside. But in a laid rope we should not consider the strength as made up of the strengths of the yarns; it is made up of the strengths of the strands: For when the rope is violently stretched, it untwists as a rope, and the strands are a little more twisted; so that they are resisting as strands, and not as yarns. Indeed, when we consider the process of laying the rope, we see that it must be so. We know, from what has been already said, that the three strands would carry more when parallel than when twisted into a rope, although the yarns would then be much more oblique to the axis. The chief attention therefore should be turned to the making the most perfect strands.

We are fully authorized to say that the twist given to cordage should be as moderate as possible. We are certain that it diminishes the strength, and that the appearance of strength which its superior smoothness and hardness gives is fallacious. But a certain degree of this is necessary for its duration. If the rope is laid too slack, its parts are apt to open when it happens to be caught in short loops at its going into a pulley, &c. in which case some of the strands or yarns are apt to kink and break. It also becomes too pervious to water, which soaks and rots it. To prevent these and other such inconveniences, a considerable degree of firmness or hardness is necessary; and in order to give the cordage this appearance of superior strength, the manufacturer is disposed to exceed.

Mr Du Hamel made many experiments in the royal Experiment dock-yards in France, with a view to ascertain what is the best degree of twist. It is usual to work up the yarns to $\frac{2}{3}$ of their length. Mr Du Hamel thought this too much, and procured some to be worked up only to $\frac{1}{2}$ of the length of the yarns. The strength of the first, by a mean of three experiments, was 4321, and that of the last was 5187.

He caused three ropes to be made from the same hemp, spun with all possible equability, and in such proportion of yarn that a fathom of each was of the same weight. The rope which was worked up to $\frac{2}{3}$ bore 4098 pounds; that which was worked up to $\frac{1}{2}$ bore 4850; and the one worked up to $\frac{3}{4}$ bore 6205. In another trial the strengths were 4250, 6753, and 7397. These ropes were of different sizes.

He had influence enough, in consequence of these experiments, to get a considerable quantity of rigging made

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made of yarns worked up only to $\frac{1}{2}$ of their length, and had them used during a whole campaign. The officers of the ships reported that this cordage was about $\frac{1}{2}$ lighter than the ordinary kind; nearly $\frac{1}{2}$ slenderer, so as to give less hold to the wind, was therefore more supple and pliant, and run easier through the blocks, and did not run into kinks; that it required fewer hands to work it, in the proportion of two to three; and that it was at least $\frac{1}{2}$ stronger. And they said that it did not appear to have suffered more by using than the ordinary cordage, and was fit for another campaign.

Mr Du Hamel also made experiments on other fabrics of cordage, which made all twisting unnecessary, such as simply laying the yarn in skains, and then covering it with a worming of small line. This he found greatly superior in strength, but it had no duration, because the covering opened in every short bending, and was soon fretted off. He also covered them with a woven coat in the manner practised for house-furniture. But this could not be put on with sufficient tightness, without an enormous expence, after the manner of a horse-whip. Small ropes were woven solid, and were prodigiously strong. But all these fabrics were found too soft and pervious to water, and were soon rendered unserviceable. The ordinary process of rope-making therefore must be adhered to; and we must endeavour to improve it by diminishing the twist as far as is compatible with the necessary solidity.

In pursuance of this principle, it is surely advisable to lay slack all such cordage as is used for standing rigging, and is never exposed to short bendings. Shrouds, stays, backstays, pendants, are in this situation, and can easily be defended from the water by tarring, serving, &c.

The same principle also directs us to make such cordage of four strands. When the strands are equally hardened, and when the degree of twist given in the laying is precisely that which is correspondent to the twist of the strands, it is demonstrable that the strands are lying less obliquely to the axis in the four-strand cordage, and should therefore exert greater force. And experience fully confirms this. Mr Du Hamel caused two very small hawsers to be made, in which the strands were equally hardened. One of them had three strands, and the other six with a heart. They were worked up to the same degree. The first broke with 865 pounds, and the other with 1325. Several comparisons were made, with the same precautions, between cordage of three and of four strands, and in them all the four-strand cordage was found greatly superior; and it appeared that a heart judiciously put in not only made the work easier and more perfect to the eye, but also increased the strength of the cordage.

It is surely unreasonable to refuse credit to such a uniform course of experiment, in which there is no motive for imposition, and which is agreeable to every clear notion that we can form on this complicated subject; and it argues a considerable presumption in the professional artists to oppose the vague notions which they have of the matter to the calm reflections, and minute examination of every particular, by a man of good understanding, who had no interest in misleading them.

The same principles will explain the superiority of

cable-laid cordage. The general aim in rope-making is to make every yarn bear an equal share of the general strain, and to put every yarn in a condition to bear it. But if this cannot be done, the next thing aimed at is, to put the yarns in such situations that the strains to which they are exposed in the use of the rope may be proportioned to their ability to bear it. Even this point cannot be attained, and we must content ourselves with an approach towards it.

The greatest difficulty is to place the yarns of a large strand agreeably to those maxims. Supposing them placed with perfect regularity round the yarn which is in the middle: they will lie in the circumferences of concentric circles. When this whole mass is turned equally round this yarn as an axis, it is plain that they will all keep their places, and that the middle yarn is simply twisted round its axis, while those of the surrounding circles are lapped round it in spirals, and that these spirals are so much more oblique as the yarns are farther from the axis. Suppose the sledge kept fast, so that the strand is not allowed to shorten. The yarns must all be stretched, and therefore strained; and those must be the most extended which are the farthest from the middle yarn. Now allow the sledge to approach. The strand contracts in its general length, and those yarns contract most which were most extended. The remaining extension is therefore diminished in all; but still those which are most remote from the middle are most extended, and therefore most strained, and have the smallest remainder of their absolute force. Unfortunately they are put into the most unfavourable situations, and those which are already most strained are left the most oblique, and have the greatest strain laid on them by any external force. But this is unavoidable: Their greatest hurt is the strains they sustain in the manufacture. When the strand is very large, as in a nine-inch hawser, it is almost impossible to bring the whole to a proper firmness for laying without straining the outer yarns to the utmost, and many of them are broken in the operation.

The reader will remember that a two-strand line was laid or closed merely by allowing it to twist itself up at the swivel of the looper; and that it was the elasticity arising from the twist of the yarn which produced this effect: and he would probably be surprised when we said, that, in laying a larger rope, the strands are twisted in a direction opposite to that of the spinning. Since the tendency to close into a rope is nothing but the tendency of the strands to untwist, it would seem natural to twist the strands as the yarns were twisted before. This would be true, if the elasticity of the fibres in a yarn produced the same tendency to untwist in the strand that it does in the yarn. But this is not the case. The contraction of one of the outer yarns of a strand tends to pull the strand backward round the axis of the strand: but the contraction of a fibre of this yarn tends to turn the yarn round its own axis, and not round the axis of the strand. It tends to untwist the yarn, but not to untwist the strand. It tends to untwist the strand only so far as it tends to contract the yarn. Let us suppose the yarn to be spun up to one-half the length of the fibres. The contracting power of this yarn will be only one-half of the force exerted by the fibres: therefore, whatever is the force necessary for closing the rope properly, the fibres of

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In laying large ropes the strands are twisted in a direction opposite to that of the spinning, and are consequently stronger.

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the yarns must be exerting twice this force. Now let the same yarn, spun up to one-half, be made up in a strand, and let the strand be twisted in the opposite direction to the spinning till it has acquired the same elasticity fit for laying. The yarns are untwisted. Suppose to three-fourths of the length of the fibres. They are now exerting only four-thirds of the force necessary for laying, that is, two-thirds of what they were obliged to exert in the other case; and thus we have stronger yarns when the strands are equally strained. But they require to be more strained than the other; which, being made of more twisted yarn, sooner acquire the elasticity fit for laying. But since the elasticity which fits the strand for laying does not increase so fast as the strain on the fibres of the yarn which produces it, it is plain, that when each has acquired that elasticity which is proper for laying, the strands made of the slack-twisted yarn are the strongest; and the yarns are also the strongest; and being softer, the rope will close better.

Experience confirms all this; and cordage, whose strands are twisted in the opposite direction to the twist of spinning, are found to be stronger than the others in a proportion not less than that of 7 to 6.

27
Great cordage made by laying it twice.

Such being the difficulty of making a large strand, and its defects when made, we have fallen on a method of making great cordage by laying it twice. A hawser-laid rope, slack spun, little hardened in the strands, and slack laid, is made a strand of a large rope called a *cable* or *cablet*. The advantages of this fabric are evident. The strands are reduced to one-third or one-fourth of the diameter which they would have in a hawser of the same size. Such strands cannot have their yarns lying very obliquely, and the outer yarns cannot be much more strained than the inner ones. There must therefore be a much greater equality in the whole substance of cable-laid cordage, and from this we should expect superior strength.

Accordingly, their superiority is great, not less than in the proportion of 13 to 9, which is not far from the proportion of 4 to 3. A cable is more than a fourth part, but is not a third part, stronger than a hawser of the same size or weight.

They are seldom made of more than three hawsers of three strands each, though they are sometimes made of three four-stranded hawsers, or of four three-stranded. The first of these two is preferred, because four small strands can be laid very close; whereas it is difficult to lay well four hawsers, already become very hard.

The superiority of a cable-laid cordage being attributed entirely to the greater perfection of the strands, and this seeming to arise entirely from their smallness, it was natural to expect still better cordage by laying cables as the strands of still larger pieces. It has been tried, and with every requisite attention. But although they have always equalled, they have not decidedly excelled, common cables of the same weight; and they require a great deal more work. We shall not therefore enter upon the manipulations of this fabric.

There is only one point of the mechanical process of rope-making which we have not considered minutely; and it is an important one, viz. the distribution of the

total shortening of the yarns between the hardening of the strands and the laying the rope. This is a point about which the artists are by no means agreed. There is certainly a position of the strands of a laid rope which puts every part in equilibrio; and this is what an elastic, but perfectly soft rope (were such a thing possible), would assume. But this cannot be discovered by any experiments made on large or even on firm cordage; and it may not be thought sufficiently clear that the proportion which would be discovered by the careful fabrication of a very small and soft line is the same that will suit a cordage of any diameter. We must proceed much on conjecture; and we cannot say that the arguments used by the partisans of different proportions are very convincing.

The general practice, we believe, is to divide the whole of the intended shortening of the yarns, or the working up into three parts, and to employ two of these in hardening the strands, and the remaining third in closing the hawser.

Mr Du Hamel thinks, that this repartition is injudicious, and that the yarns are too much strained, and the strands rendered weak. He recommends to invert this proportion, and to shorten one-third in the hardening of the strands, and two-thirds in laying the hawser. But if the strain of the yarns only is considered, one should think that the outside yarn of a strand will be more strained in laying, in proportion to the yarn of the same strand, that is, in the very axis of the rope. We can only say, that if a very soft line is formed in this way, it will not keep its twist. This shows that the turns in laying were more than what the elasticity or hardening of the strands required. The experiments made on soft lines always showed a tendency to take a greater twist when the lines were made in the first manner, and a tendency to lose their twist when made in Mr Du Hamel's manner. We imagine that the true proportion is between these two extremes; and that we shall not err greatly if we halve the total shortening between the two parts of the process. If working up to two-thirds be insisted upon, and if it be really too much, Mr Du Hamel's repartition may be better, because part of this working will quickly go off when the cordage is used. But it is surely better to be right in the main point, the total working up, and then to adjust the distribution of it so that the finished cordage shall precisely keep the form we have given to it.

There must be the same uncertainty in the quadruple distribution of the working up a cable. When a cable has its yarns shortened to two-thirds, we believe the ordinary practice has been, 1st, To warp 180 fathoms; 2d, To harden up the strands 30 fathoms; 3d, To lay or close up 13 fathoms; 4th, To work up the hawsers nine fathoms; 5th, To close up eight fathoms. This leaves a cable of 120. Since Mr Du Hamel's experiments have had an influence at Rochefort, the practice has been to warp 190, to harden up 38, to lay up 12; to work up the hawsers 10, and then to close up six; and when the cable is finished, to shorten it two fathoms more, which our workmen call *throwing the turn well up*. This leaves a cable of 122 fathoms.

As there seems little doubt of the superiority of cordage shortened one-fourth over cordage shortened one-third, the following distribution may be adopted: warp

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190 fathoms, harden up 12, lay up 11, work up the hawfers 12, and close up 12 more, which will leave a cable of 143.

There is another question about which the artists are divided in their opinions, viz. the strains made use of during the operation. This is produced by the weight laid on the sledge. If this be too small, the strands will not be sufficiently tightened, and will run into kinks. The sledge will come up by starts; and a small inequality of twist in the strands will throw it askew. The top will not run well without a considerable pressure to throw it from the closing point, and therefore the cordage will neither close fairly nor firmly; on the other hand, it is evident, that the strain on the strands is a complete expenditure of so much of their force, and it may be so great as to break them. These are the extreme positions. And we think that it may be fairly deduced from our principles, that as great a strain should be laid on the strands as will make good work, that is, as will enable the rope to close nearly and completely, but no more. But can any general rule be given for this purpose?

The practice at Rochefort was to load the sledge till its weight and load were double the weight of the yarns when warped 180 fathoms. A six-inch hawfer will require about a ton. If we suppose the friction one-third of the weight; the strain on each strand will be about two hundred and a quarter weight. Mr Du Hamel thinks this too great a load, and proposes to put only five-fourths or three-fourths of the weight of the cordage; and still less if a shorter piece be warped, because it does not require so much force to throw the twist from the two cranks to the middle of the strand. We shall only say, that stronger ropes are made by heavy loading the carriage, and working up moderately, than by greater shortening, and a lighter load; but all this is very vague.

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eral
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puting
strength
cordage.

The reader will naturally ask, after this account of the manufacture, what is the general rule for computing the strength of cordage? It cannot be expected to be very precise. But if ropes are made in a manner perfectly similar, we should expect the strength to be in proportion to the area of their section; that is, to the square of their diameters or circumferences, or to the number of equal threads contained in them.

Nor does it deviate far from this rule; yet Mr Du Hamel shows, from a range of experiments made on all cordage of $3\frac{1}{2}$ inch circumference and under, that the strength increases a little faster than the number of equal threads. Thus he found that ropes of

9 threads bore	1014 pounds,	instead of 946
12	1564	1262
18	2148	1893

We cannot pretend to account for this. We must also observe, that the strength of cordage is greatly improved by making them of yarn spun fine. This requires finely dressed hemp; and being more supple, the fibres lie close, and do not form such oblique spirals. But all hemp will not spin equally fine. Every stalk seems to consist of a certain number of principal fibres, which split more easily into a second set, and these more difficultly into a third set, and so on. The ultimate fineness, therefore, which a reasonable degree of dressing can give to hemp, bears some proportion, not in-

deed very precise, to the size of the stalk. The British and Dutch use the best hemp, spin their yarn the finest, and their cordage is considerably stronger than the French, much of which is made of their own hemp, and others of a coarse and harsh quality.

The following rule for judging of the weight which a rope will bear is not far from the truth. It supposes them rather too strong; but it is so easily remembered that it may be of use.

Multiply the circumference in inches by itself, and take the fifth part of the product, it will express the tons which the rope will carry. Thus, if the rope have 6 inches circumference, 6 times 6 is 36, the fifth of which is $7\frac{1}{5}$ tons; apply this to the rope of $3\frac{1}{2}$, on which Sir Charles Knowles made the experiments formerly mentioned, $3\frac{1}{2} \times 3\frac{1}{2} = 10,25$, $\frac{1}{5}$ of which is 2,05 tons, or 4592 pounds. It broke with 4550.

This may suffice for an account of the mechanical part of the manufacture. But we have taken no notice of the operation of tarring; and our reason was, that the methods practised in different rope-works are so exceedingly different, that we could hardly enumerate them, or even give a general account of them. It is evidently proper to tar in the state of twine or yarn, this being the only way that the hemp could be uniformly penetrated. The yarn is made to wind off one reel, and having passed through a vessel containing hot tar, it is wound up on another reel; and the superfluous tar is taken off by passing through a hole surrounded with spongy oakum; or it is tarred in skains or hauls, which are drawn by a capstern through the tar-kettle, and through a hole formed of two plates of metal, held together by a lever loaded with a weight.

It is established beyond a doubt, that tarred cordage when new is weaker than white, and that the difference increases by keeping. The following experiments were made by Mr Du Hamel at Rochefort on cordage of three inches (French) in circumference, made of the best Riga hemp.

August 8. 1741.

	White.	Tarred.
Broke with	4500 pounds.	3400 pounds.
	4900	3300
	4800	3250

April 25. 1743.

4600	3500
5000	3400
5000	3400

September 3. 1746.

3800	3000
4000	2700
4200	2800

A parcel of white and tarred cordage was taken out of a quantity which had been made February 12. 1746. It was laid up in the magazines, and comparisons were made from time to time as follows:

	White bore.	Tarred bore.	Differ.
1746 April 14.	2645 pounds.	2312 pounds.	333
1747 May 18.	2762	2155	607
1747 Oct. 21.	2700	2050	660
1748 June 19.	2575	1752	823
1748 Oct. 2.	2425	1837	588
1749 Sep. 25.	2917	1865	1052

Mr.

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making.

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Of tarring,
and its ef-
fects on the
strength of
ropes.

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Mr Du Hamel says, that it is decided by experience, 1. That white cordage in continual service is one-third more durable than tarred. 2. That it retains its force much longer while kept in store. 3. That it resists the ordinary injuries of the weather one-fourth longer.

We know this one remarkable fact. In 1758 the shrouds and stays of the Sheer hulk at Portsmouth dockyard were overhauled, and when the worming and service were taken off, they were found to be of white cordage. On examining the storekeeper's books, they were found to have been formerly the shrouds and rigging of the Royal William, of 110 guns, built in 1715, and rigged in 1716. She was thought top-heavy and unfit for sea, and unrigged and her stores laid up. Some few years afterwards, her shrouds and stays were fitted on the Sheer hulk, where they remained in constant and very hard service for about 30 years, while every tarred rope about her had been repeatedly renewed. This information we received from Mr Brown, boat-swain of the Royal William during the war 1758, &c.

Why then do we tar cordage? We thus render it more unpliant, weaker, and less durable. It is chiefly serviceable for cables and ground tackle, which must be continually wetted and even soaked. The result of careful observation is, 1. That white cordage, exposed to be alternately very wet and dry, is weaker than tarred cordage. 2. That cordage which is superficially tarred is constantly stronger than what is tarred throughout, and it resists better the alternatives of wet and dry. *N. B.* The shrouds of the Sheer hulk were well tarred and blacked, so that it was not known that they were of white cordage.

Tar is a curious substance, miscible completely with water. Attempts were made to anoint cordage with oils and fats which do not mix with water. This was expected to defend them from its pernicious effects. But it was distinctly found that these matters made the fibres of hemp glide so easily on each other, that it was hardly possible to twist them permanently. Before they grasped each other so hard that they could not be drawn, they were strained almost to breaking.

33
Effect of
tanning.

Attempts have been made to increase the strength of cordage by tanning. But although it remains a constant practice in the manufacture of nets, it does not appear that much addition, either of strength or durability, can be given to cordage by this means. The trial has been made with great care, and by persons fully able to conduct the process with propriety. But it is found that the yarns take so long time in drying, and are so much hurt by drying slowly, that the room required for a considerable rope-work would be immense; and the improvement of the cordage is but trifling, and even equivocal. Indeed tanning is a chemical process, and its effect depends entirely on the nature of the materials to which the tan is applied. It unquestionably condenses, and even strengthens, the fibre of leather: but for any thing that we know *a priori*, it may destroy the cohesion of hemp and flax; and experiment alone could decide the question. The result has been unfavourable; but it does not follow from this that a tan cannot be found which shall produce on the texture of vegetables effects similar to what oak-bark and other astringents produce on the animal fibre or membrane. It is well known that some dyes increase the

strength of flax and cotton, notwithstanding the corrosion which we know to be produced by some of the ingredients. This is a subject highly worth the attention of the chemist and the patriot.

ROPE-Dancer. See *ROPE-DANCER*.

ROPE-Yarn, among sailors, is the yarn of any rope untwisted, but commonly made up of junk; its use is to make finnet, matts, &c.

ROQUET. See *ROCKET*.

RORIDULA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants. The corolla is pentapetalous; the calyx pentaphyllous; the capsule trivalved; the antheræ scrotiform at the base.

ROSA, the *ROSE*: A genus of the polygamia order, belonging to the icolandria class of plants; and in the natural method ranking under the 35th order, *Senecioïsa*. There are five petals; the calyx is urceolated, quinquefid, corneous, and straitened at the neck. The seeds are numerous, hispid, and affixed to the inside of the calyx.

The sorts of roses are very numerous; and the botanists find it very difficult to determine with accuracy which are species and which are varieties, as well as which are varieties of the respective species. On this account Linnæus, and some other eminent authors, are inclined to think that there is only one real species of rose, which is the *rosa canina*, or "dog-rose of the hedges," &c. and that all the other sorts are accidental varieties of it. However, according to the present Linnæan arrangement, they stand divided into 14 supposed species, each comprehending varieties, which in some sorts are but few, in others numerous.

The supposed species and their varieties, according to the arrangement of modern botanists, are as follow:

1. The *canina*, canine rose, wild dog-rose of the hedges, or hep-tree, grows five or six feet high, having prickly-stalks and branches, pinnated, five or seven-lobed leaves, with aculeated foot-stalks, smooth pedunculi, oval smooth germina, and small single flowers. There are two varieties, red-flowered and white-flowered. They grow wild in hedges abundantly all over the kingdom; and are sometimes admitted into gardens, a few to increase the variety of the shrubbery collection.

2. The *alba*, or common white-rose, grows five or six feet high, having a green stem and branches, armed with prickles, hispid pedunculi, oval smooth germina, and large white flowers. The varieties are,—large double white rose—dwarf single white rose—maidens-blush white rose, being large, produced in clusters, and of a white and blush-red colour.

3. The *Gallica*, or Gallican rose, &c. grows from about three or four to eight or ten feet high, in different varieties; with pinnated, three, five, or seven-lobed leaves, and large red and other coloured flowers in different sorts. This species is very extensive in supposed varieties, bearing the above specific distinction, several of which have been formerly considered as distinct species, but are now ranged among the varieties of the Gallican rose, consisting of the following noted varieties.

Common red officinal rose, grows erect, about three or four feet high, having small branches, with but few prickles, and large spreading half-double deep-red flowers.

Rosa. flowers.—*Rosa mundi* (rose of the world) or striped red rose, is a variety of the common red rose, growing but three or four feet high, having large spreading semi-double red flowers, beautifully striped with white—and deep red.—York and Lancaster variegated rose, grows five, six, or eight feet high, or more; bearing variegated red flowers, consisting of a mixture of red and white; also frequently disposed in elegant stripes, sometimes in half of the flower, and sometimes in some of the petals.—Monthly rose, grows about four or five feet high, with green very prickly shoots; producing middle-sized, moderately double, delicate flowers, of different colours in the varieties. The varieties are, common red-flowered monthly rose—blush-flowered—white-flowered—striped-flowered. All of which blow both early and late, and often produce flowers several months in the year, as May, June, and July; and frequently again in August or September, and sometimes, in fine mild seasons, continues till November or December: hence the name *monthly rose*.—Double virgin-rose, grows five or six feet high, having greenish branches with scarce any spines; and with large double pale-red and very fragrant flowers.—Red damask rose, grows eight or ten feet high, having greenish branches, armed with short aculea; and moderately double, fine soft-red, very fragrant flowers.—White damask rose, grows eight or ten feet high, with greenish very prickly branches, and whitish-red flowers, becoming gradually of a whiter colour.—Blush Belgic rose, grows three or four feet high, or more; having greenish prickly branches, five or seven lobed leaves, and numerous, very double, bluish-red flowers, with short petals, evenly arranged.—Red Belgic rose, having greenish and red shoots and leaves, and fine double deep-red flowers.—Velvet rose, grows three or four feet high, armed with but few prickles; producing large velvet-red flowers, comprising semi-double and double varieties, all very beautiful roses.—Marbled rose, grows four or five feet high, having brownish branches, with but few prickles; and large, double, finely-marbled, red flowers.—Red-and-yellow Austrian rose, grows five or six feet high, having slender reddish-branches, armed with short brownish aculea; and with flowers of a reddish copper colour on one side, the other side yellow. This is a curious variety, and the flowers assume a singularly agreeable appearance.—Yellow Austrian rose, grows five or six feet high, having reddish very prickly shoots; and numerous bright-yellow flowers.—Double yellow rose, grows six or seven feet high; with brownish branches, armed with numerous large and small yellowish prickles; and large very double yellow flowers.—Frankfort rose, grows eight or ten feet high, is a vigorous shooter, with brownish branches thinly armed with strong prickles; and produces largish double purplish-red flowers, that blow irregularly, and have but little fragrance.

4. The centifolia, or hundred-leaved red rose, &c. grows from about three or four to six or eight feet high, in different sorts, all of them hispid and prickly; pinnated three and five lobed leaves; and large very double red flowers, having very numerous petals, and of different shades in the varieties. The varieties are, common Dutch hundred-leaved rose, grows three or four feet high, with erect greenish branches, but moderately armed with prickles; and large remarkably double red flowers, with short regularly arranged petals.

—Blush hundred leaved rose, grows like the other, with large very double pale-red flowers.—Provence rose, grows five or six feet, with greenish-brown prickly branches, and very large double globular red flowers, with large petals folding over one another, more or less in the varieties.—The varieties are, common red Provence rose, and pale Provence rose; both of which having larger and somewhat looser petals than the following sort.—Cabbage Provence rose; having the petals closely folded over one another like cabbages.—Dutch cabbage rose, very large, and cabbages tolerably.—Childing Provence rose—Great royal rose, grows six or eight feet high, producing remarkably large, somewhat loose, but very elegant flowers.—All these are large double red flowers, somewhat globular at first blowing, becoming gradually a little spreading at top, and are all very ornamental fragrant roses.—Moss Provence rose, supposed a variety of the common rose; grows erectly four or five feet high, having brownish stalks and branches, very closely armed with short prickles, and double crimson-red flowers; having the calyx and upper part of the peduncle surrounded with a rough mossy-like substance, effecting a curious singularity. This is a fine delicate rose, of a high fragrance, which, together with its mossy calyx, renders it of great estimation as a curiosity.

5. The cinnamomea, or cinnamon rose, grows five or six feet high, or more, with purplish branches thinly aculeated; pinnated five or seven lobed leaves, having almost inermous petioles, smooth pedunculi, and smooth globular germina; with small purplish-red cinnamon-scented flowers early in May. There are varieties with double flowers.

6. The Alpina, or Alpine inermous rose, grows five or six feet high, having smooth or unarmed reddish branches, pinnated seven-lobed smooth leaves, somewhat hispid pedunculi, oval germina, and deep-red single flowers; appearing in May. This species, as being free from all kind of armature common to the other sorts of roses, is esteemed as a singularity; and from this property is often called the *virgin rose*.

7. The Carolina, or Carolina and Virginia rose, &c. grows six or eight feet high, or more, having smooth reddish branches, very thinly aculeated; pinnated seven-lobed smooth leaves, with prickly foot-stalks; somewhat hispid pedunculi, globose hispid germen, and single red flowers in clusters, appearing mostly in August and September. The varieties are, dwarf Pennsylvanian rose, with single and double red flowers—American pale-red rose. This species and varieties grow naturally in different parts of North America; they effect a fine variety in our gardens, and are in estimation for their late-flowering property, as they often continue in blow from August until October; and the flowers are succeeded by numerous red berry-like heps in autumn, causing a variety all winter.

8. The villosa, or villose apple-bearing rose, grows six or eight feet high, having strong erect brownish smooth branches; aculeated sparsely pinnated seven-lobed villose or hairy leaves, downy underneath, with prickly foot-stalks, hispid peduncles, a globular prickly germen; and large single red flowers, succeeded by large round prickly heps, as big as little apples. This species merits admittance into every collection as a curiosity for the singularity of its fruit, both for variety and

Rosa.

and use; for it having a thick pulp of an agreeable acid relish, is often made into a tolerable good sweet-meat.

9. The *pimpinellifolia*, or burnet-leaved rose, grows about a yard high, aculeated sparsely; small neatly pinnated seven-lobed leaves, having obtuse folioles and rough petioles, smooth peduncles, a globular smooth germen, and small single flowers. There are varieties with red flowers—and with white flowers. They grow wild in England, &c. and are cultivated in shrubberies for variety.

10. The *spinossima*, or most spinous, dwarf burnet-leaved rose, commonly called *Scotch rose*, grows but two or three feet high, very closely armed with spines; small neatly pinnated seven-lobed leaves, with prickly foot-stalks, prickly pedunculi, oval smooth germen, and numerous small single flowers, succeeded by round dark-purple hips. The varieties are, common white-flowered—red-flowered—striped-flowered—marbled-flowered. They grow naturally in England, Scotland, &c. The first variety rises near a yard high, the others but one or two feet, all of which are single-flowered; but the flowers being numerous all over the branches, make a pretty appearance in the collection.

11. The *eglanteria*, *eglantine rose*, or sweet briar, grows five or six feet high, having green branches, armed with strong spines sparsely; pinnated seven-lobed odoriferous leaves, with acute folioles and rough foot-stalks, smooth pedunculi, globular smooth germina, and small pale-red flowers. The varieties are, common single-flowered—semi-double flowered—double-flowered—blush double-flowered—yellow-flowered. This species grows naturally in some parts of England, and in Switzerland. It claims culture in every garden for the odoriferous property of its leaves; and should be planted in the borders, and other compartments contiguous to walks, or near the habitation, where the plants will impart their refreshing fragrance very profusely all around; and the young branches are excellent for improving the odour of nose-gays and bow-pots.

12. The *moschata*, or musk-rose, supposed to be a variety only of the ever-green musk-rose, hath weak smooth green stalks and branches, rising by support from six to eight or ten feet high or more, thinly armed with strong spines; pinnated seven-lobed smooth leaves, with prickly foot-stalks; hispid peduncles; oval hispid germen; and all the branches terminated by large umbellate clusters of pure-white musk-scented flowers in August, &c.

13. The *sempervirens*, or ever-green musk rose, hath a somewhat trailing stalk and branches, rising by support five or six feet high or more, having a smooth bark armed with prickles; pinnated five-lobed smooth shining evergreen leaves, with prickly petioles, hispid pedunculi, oval hispid germen; and all the branches terminated by clusters of pure-white flowers of a musky fragrance; appearing the end of July, and in August. The sempervirent property of this elegant species renders it a curiosity among the rosy tribe; it also makes a fine appearance as a flowering shrub. There is one variety, the deciduous musk-rose above-mentioned. This species and variety flower in August, and is remarkable for producing them numerously in clusters, continuing in succession till October or November.

The above 13 species of *rosa*, and their respective va-

rieties, are of the shrub-kind; all deciduous, except the last sort, and of hardy growth, succeeding in any common soil and situation, and flowering annually in great abundance from May till October, in different sorts; though the general flowering season for the principal part of them is June and July: but in a full collection of the different species, the blow is continued in constant succession several months, even sometimes from May till near Christmas; producing their flowers universally on the same year's shoots, rising from those the year before, generally on long pedunculi, each terminated by one or more roses, which in their characteristic state consist each of five large petals and many stamina; but in the doubles, the petals are very numerous; and in some sorts, the flowers are succeeded by fruit ripening to a red colour in autumn and winter, from the seed of which the plants may be raised: but the most certain and eligible mode of propagating most of the sorts is by suckers and layers; and by which methods they may be increased very expeditiously in great abundance.

The white and red roses are used in medicine. The former distilled with water yields a small portion of a butyraceous oil, whose flavour exactly resembles that of the roses themselves. This oil and the distilled water are very useful and agreeable cordials. These roses also, besides the cordial and aromatic virtues which reside in their volatile parts, have a mild purgative one, which remains entire in the decoction left after distillation. The red rose, on the contrary, has an astringent and gratefully corroborating virtue.

ROSA (Salvator), an admirable painter, born at Naples in 1614. He was first instructed by Francesco Francazano, a kinsman: but the death of his father reduced him to sell drawings sketched upon paper for any thing he could get; one of which happening to fall into the hands of Lanfranc, he took him under his protection, and enabled him to enter the school of Spagnoletto, and to be taught moreover by Daniel Falcone, a distinguished painter of battles at Naples. Salvator had a fertile imagination. He studied nature with attention and judgment; and always represented her to the greatest advantage: for every tree, rock, cloud, or situation, that enters into his composition, shows an elevation of thought that extorts admiration. He was equally eminent for painting battles, animals, sea or land storms; and he executed these different subjects in such taste as renders his works readily distinguishable from all others. His pieces are exceedingly scarce and valuable; one of the most capital is that representing Saul and the witch of Endor, which was preserved at Versailles. He died in 1673; and as his paintings are in few hands, he is more generally known by his prints; of which he etched a great number. He painted landscapes more than history; but his prints are chiefly historical. The capital landscape of this master at Chiswick is a noble picture. However, he is said to have been ignorant of the management of light, and to have sometimes shaded faces in a disagreeable manner. He was however a man of undoubted genius; of which he has given frequent specimens in his works. A roving disposition, to which he is said to have given full scope, seems to have added a wildness to all his thoughts. We are told that he spent the early part of his life in a troop of banditti; and that the rocky desolate scenes

Rosa.

Rosacea in which he was accustomed to take refuge, furnished him with those romantic ideas in landscape, of which he is so exceedingly fond, and in the description of which he so greatly excels. His *robbers*, as his detached figures are commonly called, are supposed also to have been taken from the life.

Salvator Rosa is sufficiently known as a painter; but until now we never heard of him as a musician. Among the musical manuscripts purchased at Rome by Dr Burney, was a music book of Salvator, in which are many airs and cantatas of different masters, and eight entire cantatas, written, set, and transcribed by this celebrated painter himself. From the specimen of his talents for music here given, we make no scruple of declaring, that he had a truer genius for this science, in point of melody, than any of his predecessors or contemporaries: there is also a strength of expression in his verses, which sets him far above the middle rank as a poet. Like most other artists of real original merit, he complains of the ill usage of the world, and the difficulty he finds in procuring a bare subsistence.

ROSACEA. See *GUTTA Rosacea*.

ROSACEOUS, among botanists, an appellation given to such flowers as are composed of several petals or leaves disposed in a sort of circular form, like those of a rose.

ROSAMOND, daughter of Walter Lord Clifford, was a young lady of exquisite beauty, fine accomplishments, and blessed with a most engaging wit and sweetness of temper. She had been educated, according to the custom of the times, in the nunnery of Godstow; and the popular story of her is as follows: Henry II. saw her, loved her, declared his passion, and triumphed over her honour. To avoid the jealousy of his queen Elinor, he kept her in a wonderful labyrinth at Woodstock, and by his connection with her had William Longsword earl of Salisbury, and Geoffrey bishop of Lincoln. On Henry's absence in France, however, on account of a rebellion in that country, the queen found means to discover her, and though struck with her beauty, she recalled sufficient resentment to poison her. The queen, it is said, discovered her apartment by a thread of silk; but how she came by it is differently related. This popular story is not however supported by history; several writers mention no more of her, than that the queen so vented her spleen on Rosamond as that the lady lived not long after. Other writers assert that she died a natural death; and the story of her being poisoned is thought to have arisen from the figure of a cup on her tomb. She was buried in the church of Godstow, opposite to the high altar, where her body remained till it was ordered to be removed with every mark of disgrace by Hugh bishop of Lincoln, in 1191. She was, however, by many considered as a saint after her death, as appears from an inscription on a cross which Leland says stood near Godstow:

*Qui meat hac oret, signum salutis adoret,
Uique sibi detur veniam. Rosamunda precetur.*

And also by the following story: Rosamond, during her residence at her bower, made several visits to Godstow; where being frequently reproved for the life she led, and threatened with the consequences in a future state, she always answered, that she knew she should be

saved; and as a token to them, showed a tree which she said would be turned into a stone when she was with the saints in heaven. Soon after her death this wonderful metamorphosis happened, and the stone was shown to strangers at Godstow till the time of the dissolution.

ROSARY, among the Roman Catholics. See CHAPLET.

ROSBACH, a town of Germany, in Saxony, famous for a victory obtained here by the king of Prussia over the French, on November 5. 1757, in which 10,000 of the French were killed or taken prisoners, with the loss of no more than 500 Prussians. See PRUSSIA, n^o 30.

ROSCHILD, a town of Denmark, in the isle of Zealand, with a bishop's see and a small university. It is famous for a treaty concluded here in 1658; and in the great church there are several tombs of the kings of Denmark. It is seated at the bottom of a small bay, in E. Long. 12. 20. N. Lat. 55. 40.

ROSCOMMON, a county of Ireland, in the province of Connaught, bounded on the west by the river Suc, on the east by the Shannon, on the north by the Curlew mountains, on the south and south east by the King's county and part of Galway. Its length is 35 miles, its breadth 28. The air of the county, both on the plains and mountains, is healthy; the soil yields plenty of grass with some corn, and feeds numerous herds of cattle. The Curlew mountains on the north are very high and steep; and, till a road with great labour and difficulty was cut through them, were impassable.

ROSCOMMON, which gives the title of earl to the family of Dillon, and name to the county, though not large, is both a parliamentary borough and the county town.

ROSCOMMON (Wentworth Dillon, earl of), a celebrated poet of the 17th century, was the son of James Dillon earl of Roscommon; and was born in Ireland, under the administration of the first earl of Strafford, who was his uncle, and from whom he received the name of *Wentworth* at his baptism. He passed his infancy in Ireland; after which the earl of Strafford sent for him into England, and placed him at his own seat in Yorkshire, under the tuition of Dr Hall, afterwards bishop of Norwich, who instructed him in Latin, without teaching him the common rules of grammar, which he could never retain in his memory, and yet he learnt to write in that language with classical elegance and propriety. On the earl of Strafford's being impeached, he went to complete his education at Caen in Normandy; and after some years travelled to Rome, where he became acquainted with the most valuable remains of antiquity, and in particular was well skilled in medals, and learned to speak Italian with such grace and fluency, that he was frequently taken for a native. He returned to England soon after the Restoration, and was made captain of the band of pensioners; but a dispute with the lord privy-seal, about a part of his estate, obliged him to resign his post, and revisit his native country, where the duke of Ormond appointed him captain of the guards. He was unhappily very fond of gaming; and as he was returning to his lodgings from a gaming-table in Dublin, he was attacked in the dark by three ruffians, who were employed to assassinate him.

Rosary
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Roscom-
mon.

Roscom-
mon.

The earl defended himself with such resolution, that he had dispatched one of the aggressors, when a gentleman passing that way took his part, and disarmed another, on which the third sought his safety in flight. This generous assistant was a disbanded officer of good family and fair reputation, but reduced to poverty; and his lordship rewarded his bravery by resigning to him his post of captain of the guards. He at length returned to London; when he was made master of the horse to the dukes of York, and married the lady Frances, eldest daughter of Richard earl of Burlington, who had been the wife of Colonel Courtney. He here distinguished himself by his writings: and in imitation of those learned and polite assemblies with which he had been acquainted abroad, began to form a society for refining and fixing the standard of the English language, in which his great friend Mr Dryden was a principal assistant. This scheme was entirely defeated by the religious commotions which ensued on king James's accession to the throne. In 1683 he was seized with the gout; and being too impatient of pain, he permitted a bold French empiric to apply a repelling medicine, in order to give him present relief; which drove the distemper into his bowels, and in a short time put a period to his life, in January 1684. He was buried with great pomp in Westminster-abbey.

His poems, which are not numerous, are in the body of English poetry collected by Dr Johnson. His "Essay on Translated Verse," and his translation of "Horace's Art of Poetry," have great merit. Waller addressed a poem to his lordship upon the latter, when he was 75 years of age. "In the writings of this nobleman we view (says Fenton) the image of a mind naturally serious and solid; richly furnished and adorned with all the ornaments of art and science; and those ornaments unaffectedly disposed in the most regular and elegant order. His imagination might probably have been more fruitful and sprightly, if his judgement had been less severe; but that severity (delivered in a masculine, clear, succinct style) contributed to make him so eminent in the didactical manner, that no man, with justice, can affirm he was ever equalled by any of our nation, without confessing at the same time that he is inferior to none. In some other kinds of writing his genius seems to have wanted fire to attain the point of perfection; but who can attain it? He was a man of an amiable disposition, as well as a good poet; as Pope, in his 'Essay on Criticism,' hath testified in the following lines:

— Roscommon not more learn'd than good,
With manners generous as his noble blood;
To him the wit of Greece and Rome was known,
And every author's merit but his own."

We must allow of Roscommon, what Fenton has not mentioned so distinctly as he ought, and, what is yet very much to his honour, that he is perhaps the only correct writer in verse before Addison; and that, if there are not so many or so great beauties in his compositions as in those of some contemporaries, there are at least fewer faults. Nor is this his highest praise; for Pope has celebrated him as the only moral writer of King Charles's reign:

Unhappy Dryden! in all Charles's days,
Roscommon only boasts unspotted lays.

Of Roscommon's works, the judgment of the public seems to be right. He is elegant, but not great; he never labours after exquisite beauties, and he seldom falls into gross faults. His versification is smooth, but rarely vigorous, and his rhymes are remarkably exact. He improved taste, if he did not enlarge knowledge, and may be numbered among the benefactors to English literature.

ROSE, in botany. See ROSA.

Essence of Roses. See ROSES Otter.

Rose of Jericho, so called because it grows in the plain of Jericho, though it did not originally grow there. It has perhaps been so named by travellers who did not know that it was brought from Arabia Petræa. Rose bushes are frequently found in the fields about Jericho; but they are of a species much inferior to those so much extolled in Scripture, the flowers of which some naturalists pretend to have in their cabinets.

"The rose shrub of Jericho (says Mariti) is a small ^{Travelle} plant, with a bushy root, about an inch and a half in ^{through} length. It has a number of stems which diverge from ^{Syria and} the earth: they are covered with few leaves; but it is ^{Palestine} loaded with flowers, which appear red when in bud, turn paler as they expand, and at length become white entirely. These flowers appear to me to have a great resemblance to those of the elder-tree; with this difference, that they are entirely destitute of smell. The stems never rise more than four or five inches from the ground. This shrub sheds its leaves and its flowers as it withers. Its branches then bend in the middle, and becoming entwined with each other to the top, form a kind of globe. This happens during the great heats; but during moist and rainy weather they again open and expand.

"In this country of ignorance and superstition, people do not judge with a philosophical eye of the alternate shutting and opening of this plant: it appears to them to be a periodical miracle, which heaven operates in order to make known the events of this world. The inhabitants of the neighbouring cantons come and examine these shrubs when they are about to undertake a journey, to form an alliance, to conclude any affair of importance, or on the birth of a son. If the stems of the plants are open, they do not doubt of success; but they account it a bad omen to see them shut, and therefore renounce their project if it be not too late.

"This plant is neither subject to rot nor to wither. It will bear to be transplanted; and thrives without degenerating in any kind of soil whatever."

Roses Otter (or essential oil of), is obtained from roses by simple distillation, and may be made in the following manner: A quantity of fresh roses, for example 40 pounds, are put in a still with 60 pounds of water, the roses being left as they are with their calyxes, but with the stems cut close. The mass is then well mixed together with the hands, and a gentle fire is made under the still; when the water begins to grow hot, and fumes to rise, the cap of the still is put on, and the pipe fixed; the chinks are then well luted with paste, and cold water put on the refrigeratory at top: the receiver is also adapted at the end of the pipe; and the fire is continued under the still, neither too violent nor too weak. When the impregnated water begins to come over, and the still is very hot, the fire is lessened.

Rose.

Rose,
Rosetto.Rosetto,
Rosicrucians.

ed by gentle degrees, and the distillation continued till 30 pounds of water are come over, which is generally done in about four or five hours; this rose-water is to be poured again on a fresh quantity (40 pounds) of roses, and from 15 to 20 pounds of water are to be drawn by distillation, following the same process as before. The rose-water thus made and cohobated will be found, if the roses were good and fresh, and the distillation carefully performed, highly scented with the roses. It is then poured into pans either of earthen ware or of tinned metal, and left exposed to the fresh air for the night. The otter or essence will be found in the morning congealed, and swimming on the top of the water; this is to be carefully separated and collected either with a thin shell or a skimmer, and poured into a vial. When a certain quantity has thus been obtained, the water and feces must be separated from the clear essence, which, with respect to the first, will not be difficult to do, as the essence congeals with a slight cold, and the water may then be made to run off. If, after that, the essence is kept fluid by heat, the feces will subside, and may be separated; but if the operation has been neatly performed, these will be little or none. The feces are as highly perfumed as the essence, and must be kept, after as much of the essence has been skimmed from the rose-water as could be. The remaining water should be used for fresh distillations, instead of common water, at least as far as it will go.

The above is the whole process, as given in the Asiatic Researches by lieutenant-colonel Polier*, of making genuine otter of roses. But attempts (he says) are often made to augment the quantity, though at the expense of the quality. Thus the raspings of sandal-wood, which contain a deal of essential oil, are used; but the imposition is easily discovered, both by the smell, and because the essential oil of sandal-wood will not congeal in common cold. In other places they adulterate the otter by distilling with the roses a sweet-scented grass, which colours it of a high clear green. This does not congeal in a slight cold. There are numerous other modes, far more palpable, of adulteration. The quantity of essential oil to be obtained from roses is very precarious, depending on the skill of the distiller, on the quality of the roses, and the favourableness of the season. The colour of the otter is no criterion of its goodness, quality, or country. The calyxes by no means diminish the quality of otter, nor do they impart any green colour to it. They indeed augment the quantity, but the trouble necessary to strip them is such as to prevent their being often used.

ROSE-Noble, an ancient English gold coin, first struck in the reign of Edward III. It was formerly current at 6s. 8d. and so called because stamped with a rose. See MONEY.

ROSE-Wood. See *ASPALATHUS*.

ROSETTO, a town of Africa, in Egypt, is pleasantly situated on the west side of that branch of the Nile called by the ancients *Bolbitinum*, affirmed by Herodotus to have been formed by art; the town and castle being on the right hand as you enter that river. Any one that sees the hills about Rosetto would judge that they had been the ancient barriers of the sea, and conclude that the sea has not lost more ground than the space between the hills and the water.

Rosetto is esteemed one of the pleasantest places in Egypt; it is about two miles long, and consists only of two or three streets. The country about it is most delightful and fertile, as is all the whole Delta on the other side of the Nile, exhibiting the most pleasant prospect of gardens, orchards, and corn-fields, excellently well cultivated. The castle stands about two miles north of the town, on the west side of the river. It is a square building, with round towers at the four corners, mounted with some pieces of brass cannon. The walls are of brick, cased with stone, supposed to have been built in the time of the holy war, though since repaired by Cheyk Begh. At a little distance lower, on the other side of the river, is a platform, mounted with some guns, and to the east of it are the salt lakes, out of which they gather great quantities of that commodity. At some farther distance, sailing up the river, we see a high mountain, on which stands an old building that serves for a watch-tower. From this eminence is discovered a large and deep gulph, in form of a crescent, which appears to have been the work of art, though it be now filled up, and discovers nothing but its ancient bed. Rosetto is grown a considerable place for commerce, and hath some good manufactures in the linen and cotton way; but its chief business is the carriage of goods to Cairo, all the European merchandise being brought thither from Alexandria by sea, and carried in other boats to that capital; as those that are brought down from it on the Nile are there shipped off for Alexandria; on which account the Europeans have here their vice-consuls and factors to transact their business; and the government maintains a beigh, a customhouse, and a garrison, to keep all safe and quiet.

In the country to the north of Rosetto are delightful gardens, full of orange, lemon, and citron trees, and almost all sorts of fruits, with a variety of groves of palm-trees; and when the fields are green with rice, it adds greatly to the beauty of the country. It is about 25 miles north-east of Alexandria, and 100 north-west of Cairo. E. Long. 30. 45. N. Lat. 31. 30.

ROSICRUCIANS, a name assumed by a sect or cabal of hermetical philosophers; who arose, as it has been said, or at least became first taken notice of, in Germany, in the beginning of the fourteenth century. They bound themselves together by a solemn secret, which they all swore inviolably to preserve; and obliged themselves, at their admission into the order, to a strict observance of certain established rules. They pretended to know all sciences, and chiefly medicine; whereof they published themselves the restorers. They pretended to be masters of abundance of important secrets, and, among others, that of the philosopher's stone; all which they affirmed to have received by tradition from the ancient Egyptians, Chaldeans, the Magi, and Gymnosophists. They have been distinguished by several names, accommodated to the several branches of their doctrine. Because they pretend to protract the period of human life, by means of certain nostrums, and even to restore youth, they were called *Immortales*; as they pretended to know all things, they have been called *Illuminati*; and because they have made no appearance for several years, unless the sect of Illuminated which lately started up on the continent derives its origin from them, they have been called the *invisible brothers*. Their society is

Rosicrucians.

frequently signed by the letters F. R. C. which some among them interpret *fratres rosis coeli*; it being pretended, that the matter of the philosophers stone is dew concocted, exalted, &c. Some, who are no friends to free-masonry, make the present flourishing society of free-masons a branch of Rosicrucians; or rather the Rosicrucians themselves, under a new name or relation, viz. as retainers to building. And it is certain, there are some free-masons who have all the characters of Rosicrucians; but how the æra and original of masonry (see MASONRY), and that of Rosicrucianism, here fixed from Naudæus, who has written expressly on the subject, consist, we leave others to judge.

Notwithstanding the pretended antiquity of the Rosicrucians, it is probable that the alchemists, Paracelsists, or fire-philosophers, who spread themselves through almost all Europe about the close of the sixteenth century, assumed about this period the obscure and ambiguous title of Rosicrucian brethren, which commanded at first some degree of respect, as it seemed to be borrowed from the arms of Luther, which were a cross placed upon a rose. But the denomination evidently appears to be derived from the science of chemistry. It is not compounded, says Mosheim, as many imagine, of the two words *rosa* and *crux*, which signify rose and cross, but of the latter of these words, and the Latin *ros*, which signifies dew. Of all natural bodies, dew was deemed the most powerful dissolvent of gold; and the cross, in the chemical language, is equivalent to light, because the figure of a cross + exhibits, at the same time, the three letters of which the word *lux*, or light, is compounded. Now *lux* is called, by this sect, the seed or menstruum of the red dragon, or, in other words, that gross and corporeal light which, when properly digested and modified, produces gold. Hence it follows, if this etymology be admitted, that a Rosicrucian philosopher is one who, by the intervention and assistance of the dew, seeks for light, or, in other words, the substance called the philosopher's stone. The true meaning and energy of this denomination did not escape the penetration and sagacity of Gassendi, as appears by his *Examen Philosophiæ Fluddianæ*, sect. 15. tom. iii. p. 261. And it was more fully explained by Renaudot, in his *Conferences Publiques*, tom. iv. p. 87.

At the head of these fanatics were Robert Fludd, an English physician, Jacob Behmen, and Michael Mayer; but if rumour may be credited, the present Illuminated have a head of higher rank. The common principles, which serve as a kind of centre of union to the Rosicrucian society, are the following: They all maintain, that the dissolution of bodies, by the power of fire, is the only way by which men can arrive at true wisdom, and come to discern the first principles of things. They all acknowledge a certain analogy and harmony between the powers of nature and the doctrines of religion; and believe that the Deity governs the kingdom of grace by the same laws with which he rules the kingdom of nature; and hence they are led to use chemical denominations to express the truths of religion. They all hold, that there is a sort of divine energy, or soul, diffused through the frame of the universe, which some call the *æthereus*, others the *universal spirit*, and which others mention under different appellations. They all talk in the most superstitious manner of what they call the signatures of things, of the power

of the stars over all corporeal beings; and their particular influence upon the human race, of the efficacy of magic, and the various ranks and orders of demons—These demons they divide into two orders, *sylphs* and *gnomes*; which supplied the beautiful machinery of Pope's *Rape of the Lock*. In fine, the Rosicrucians and all their fanatical descendants agree in throwing out the most crude incomprehensible notions and ideas, in the most obscure, quaint, and unusual expressions.—Mosheim. Eccl. Hist. vol. iv. p. 266, &c. English edition, 8vo. See BEEHMEN and THEOSOPHISTS.

ROSIER. See PILATRE.

ROSIERS-AUX-SALINES, a town of France, in Lorraine, and in the bailiwick of Nancy, famous for its salt-works. The works that king Stanislaus made here are much admired. It is seated on the river Murt, in E. Long. 6. 27. N. Lat. 48. 32.

ROSKILD, formerly the royal residence and metropolis of Denmark, stands at a small distance from the Bay of Helsingør, not far from Copenhagen. In its flourishing state it was of great extent, and comprised within its walls 27 churches, and as many convents.—Its present circumference is scarcely half an English mile, and it contains only about 1620 souls. The houses are of brick, and of a neat appearance. The only remains of its original magnificence are the ruins of a palace and of the cathedral, a brick building with two spires, in which the kings of Denmark are interred. Little of the original building now remains. According to Holberg, it was constructed of wood, and afterwards built with stone; in the reign of Canute.—From an inscription in the choir, it appears to have been founded by Harold VI. who is styled king of Denmark, England, and Norway. Some verses, in barbarous Latin, obscurely allude to the principal incidents of his life; adding, that he built this church, and died in 980.—See Coxe's Travels into Poland, Russia, Sweden, and Denmark, vol. ii. p. 525.

ROSLEY-HILL, a village in Cumberland, with a fair on Whit-Monday, and every fortnight after till September 29. for horses, horned cattle, and linen cloth.

ROSLIN, or ROSKELYN, a place in the county of Mid Lothian in Scotland, remarkable for an ancient chapel and castle. The chapel was founded in 1446, by St Clare, prince of Orkney, for a provost, six prebendaries, and two singing-boys. The outside is ornamented with a multitude of pinnacles, and variety of ludicrous sculpture. The inside is 69 feet long, the breadth 34, supported by two rows of clustered pillars, between seven and eight feet high, with an aisle on each side. The arches are obtusely Gothic. These arches are continued across the side-aisles, but the centre of the church is one continued arch, elegantly divided into compartments, and finely sculptured. The capitals of the pillars are enriched with foliage, and a variety of figures; and amidst a heavenly concert appears a cherubim blowing the ancient Highland bagpipes. The castle is seated on a peninsulated rock, in a deep glen far beneath, and accessible by a bridge of great height. This had been the seat of the great family of Sinclair. Of this house was Oliver, favourite of James V. and the innocent cause of the loss of the battle of Solway Moss, by reason of the envy of the nobility on account of his being preferred to the command.

Rosier
Roslin.

Roslin,
Rosmarinus.

Near this place the English received three defeats in one day under John de Segrave the English regent of Scotland in 1302. The Scots, under their generals Cummin and Fraser, had resolved to surprise Segrave; with which view they began their march on the night of Saturday preceding the first Sunday of Lent, and reached the English army by break of day. Segrave, however, had time to have fallen back upon the other division which lay behind him; but, either despising his enemies too much, or thinking that he would be dishonoured by a retreat, he encountered the Scots; the consequence of which was, that he himself was made prisoner, and all his men either killed or taken, except such as fled to the other division. As in this routed division there had been no fewer than 300 knights, each of whom brought at least five horsemen into the field, great part of the Scots infantry quickly furnished themselves with their horses; but, as they were dividing the spoils, another division of the English appeared, and the Scots were obliged to fight them also. The English, after a bloody engagement, were defeated a second time; which was no sooner done, than the third and most powerful division made its appearance. The Scots were now quite exhausted; and, pleading the excessive labours they had already undergone, earnestly requested their generals to allow them to retreat while it was yet in their power. Their two generals, who perhaps knew that to be impracticable, reminded them of the cause for which they were fighting, the tyranny of the English, &c. and by these arguments prevailed upon them to fight a third time; though, previous to the engagement, they were reduced to the cruel necessity of putting all the common soldiers whom they had made prisoners to the sword. The victory of the Scots at this time was less complete than the other two had been; since they could not prevent the retreat of the English to Edinburgh, nor Segrave from being rescued from his captivity.

ROSMARINUS, ROSEMARY, in botany: A genus of the monogynia order, belonging to the diandria class of plants, and in the natural method ranking under the 42d order, *Verticillate*. The corolla is unequal, with its upper lip bipartite; the filaments are long, curved, and simple, each having a small dent. There are two species, the angustifolia and latifolia, or narrow and broad leaved rosemary; of which the second has larger flowers and a stronger scent than the other. There are two varieties; one of the first sort with striped leaves, called the *silver rosemary*; and the other with yellow, whence it is called the *gold-striped rosemary*. These plants grow naturally in the southern parts of France, Spain, and Italy; where, upon dry rocky soils near the sea, they thrive prodigiously, and perfume the air in such a manner as to be smelt at a great distance from the land.—However, they are hardy enough to bear the cold of our ordinary winters, provided they be planted upon a poor, dry, gravelly soil, on which they will endure the cold much better than in a richer ground, where, growing more vigorously in summer, they are more apt to be injured by frost in winter; nor will they have such a strong aromatic scent as those on a dry and barren soil. They are to be propagated either by slips or cuttings.

Rosemary has a fragrant smell, and a warm pungent bitterish taste, approaching to those of lavender: the leaves and tender tops are strongest; next to those, the

cup of the flower; the flowers themselves are considerably the weakest, but most pleasant. Aqueous liquors extract great share of the virtues of rosemary leaves by infusion, and elevate them in distillation; along with the water arises a considerable quantity of essential oil, of an agreeable strong penetrating smell. Pure spirit extracts in great perfection the whole aromatic flavour of the rosemary, and elevates very little of it in distillation; hence the resinous mass, left upon extracting the spirit, proves an elegant aromatic, very rich in the peculiar qualities of the plant. The flowers of rosemary give over great part of their flavour in distillation with pure spirit; by watery liquors, their fragrance is much injured; by beating, destroyed.

ROSS, in Herefordshire, in England, 119 miles from London, is a fine old town, with a good trade, on the river Wye. It was made a free borough by Henry III. It is a populous place, famous for cyder, and was noted in Camden's time for a manufacture of iron-wares. There are in it two charity-schools, which lately have been enriched by a legacy of 200*l. per annum* from Mr Scott, in Dec. 1786, a second *Man of Rofs*. And its market and fairs are well stored with cattle and other provisions. At the west end of it there is a fine broad causeway, constructed by Mr John Kyrle, the celebrated *Man of Rofs*, who also raised the spire upward of 100 feet, and inclosed a piece of ground with a stone wall, and sunk a reservoir in its centre, for the use of the inhabitants of the town. He died in 1714, aged 90, with the blessing of all who knew him, both rich and poor. There cannot be a pleasanter country than the banks of the Wye, between this town and Monmouth. W. Long. 2. 25. N. Lat. 51. 56.

Ross, a county of Scotland, including Tayne and Cromarty, stretching 80 miles in length, and 78 in breadth, is bounded on the west by the western sea, and part of the isle of Sky; by Inverness, on the south; Strathnaver and Sutherland, on the north and north-east; and by Cromarty and the Murray-Frith on the east. Tayne includes the greater part of Rofs, with the isles of Sky, Lewis, and Harries. Cromarty lies on the other side of the Murray-Frith, to the northward of Inverness, extending but 12 miles in length, bounded on the south and east by part of Rofs and the Frith of Murray, and by the Frith of Cromarty on the north. The shire of Rofs takes up the whole breadth of the island; and being much indented with bays and inlets from both seas, appears of a very irregular form.—These bays afford safe harbours for shipping, especially that of Cromarty, which is capacious enough to contain all the fleets of Europe, being land-locked on every side, and is in all respects one of the best harbours in the known world. The Frith of Tayne, on the east side of the shire, runs up 25 miles from the sea, as far as the Cape Tarbat, dividing Rofs from Sutherland: it is about seven miles broad at the mouth, but, on account of quick-sands, unsafe for navigation. The country of Rofs is encumbered with huge mountains, on which the snow lies for the greatest part of the year; these, however, yield good pasture; but on the eastern side, next the German ocean, the country admits of agriculture, and produces good crops of corn. The valleys are fertilized by several rivers, among which we reckon the Okel, the Charron, and the Braan; besides a number of fresh-water lakes, which indeed are found.

Rofs,
Rossano.

found in every part of this country. The valleys, or straths, are generally covered with wood; and near Alfrag there are forests of fir 15 or 20 miles in length, well stocked with deer and game of all sorts. Great numbers of black cattle, horses, sheep, and goats, are fed upon the mountains; and the sea, rivers, and lakes, teem with fish and fowl. The lochs on the western coast abound with herrings in the season, particularly Loch Eu, about nine miles long, and three in breadth; one part of this is formed by a bay, or inlet of the sea; and the other is a lake of fresh water. The sides of it are covered with wood, where formerly abundance of iron was smelted. Though the middle part of Rofs, called *Ardrofs*, is mountainous and scarce inhabited, the north-east parts on the rivers Okel, Charron, and Frith of Tayne, are fruitful, and abound with villages. Coygach and Afsgut, two northerly districts, are bare and hilly; yet they abound with deer and black cattle; and we see several good houses towards the coast, where there are also promontories, and huge rocks of marble. Ardmeanach part of the peninsula betwixt the bays of Cromarty and Murray, is a barony, which of old belonged to a title on the king of Scotland's second son. The district of Glen-elchig, on the south-west, was the paternal estate of the earl of Seaforth, chief of the clan of Mackenzie: but the last earl of that name, having risen in rebellion, was in the year 1719 defeated at Glen-shiel, in this very quarter, together with a small body of Spaniards by whom he had been joined. His auxiliaries were taken; and though he himself, with some of his friends, escaped to the continent, his estate and honours were forfeited. At the same time, the king's troops, who obtained this victory, dismantled the castle of Yion-donnen, situated on an island in a bay that fronts the isle of Sky. It belonged to the crown; but the office of hereditary governor was vested in the earl of Seaforth, and here he had erected his magazine. Rofs is chiefly peopled by the Mackenzies and Frasers, two warlike clans, who speak Erse, and live in the Highland fashion. There are fisheries carried on along the coast; but their chief traffic is with sheep and black cattle. The chief towns of Rofs are Channerie, Dingwall, Tayne, and Fortrose.

ROSSANO, a strong town of Italy, in the kingdom of Naples, and in the Hither Calabria, with an archbishop's see, and the title of a principality. It is pretty large, well peopled, and seated on an eminence surrounded with rocks. There is nothing in this archiepiscopal city that claims much notice; the buildings are mean, the streets vilely paved and contrived. The number of inhabitants does not exceed 6000, who subsist by the sale of their oil, the principal object of their attention, though the territory produces a great deal of good wine and corn.

Rossano probably owes its origin to the Roman emperors, who considered it as a post equally valuable for strength and convenience of traffic. The Marsans, a family of French extraction, possessed this territory, with the title of prince, from the time of Charles II. to that of Alphonfus II. when the last male heir was, by that prince's order, put to death in Ischia, where he was confined for treason. It afterwards belonged to Bona, queen of Poland, in right of her mother Isabella, daughter to Alphonfus II. and at her decease returned to the crown. It was next in the possession of the Al-

dobrandini, from whom the Borghesi inherited it. So late as the 16th century, the inhabitants of this city spoke the Greek language, and followed the rites of the eastern church. Here was formerly the most celebrated rendezvous of the Basilian monks in Magna Græcia. E. Long. 16. 52. N. Lat. 39. 45.

ROS-SOLIS, *Sun-dew*, an agreeable spirituous liquor, composed of burnt brandy, sugar, cinnamon, and milk-water; and sometimes perfumed with a little musk. It has its name from being at first prepared wholly of the juice of the plant *ros folis*, or *drosera*. See *DROSER*.

ROSTOCK, a town of Germany, in the circle of Upper Saxony, and duchy of Mecklenburg, with an university and a very good harbour. It is the best town in this country; and has good fortifications, with an arsenal. The duke has a strong castle, which may be looked upon as a citadel. It is divided into three parts, the Old, the New, and the Middle Towns. It was formerly one of the Hanseatic towns, and is still Imperial, under the protection of the duke of Mecklenburg. It is seated on a lake where the river Varne falls into it, and carries large boats. The government is in the hands of 24 aldermen, elected out of the nobility, university, and principal merchants; four of whom are burgomasters, two chamberlains, two stewards for the river, and two judges of civil and criminal matters. These 24 are called the Upper House, and have in a manner the whole executive power lodged in them, with the power of coining money, and electing officers. There is also a common-council of 100 inferior citizens, who are summoned to give their advice upon extraordinary emergencies relating to the whole community. The principal things worth seeing are the fortifications, the prince's palace, the stadthouse, the arsenal, and the public library. The town is famous for good beer, which they export in great quantities. Some years ago they had no less than 250 privileged brewers, who, it is said, brewed so many thousand tuns a year, besides what particular persons brew for their own use. E. Long. 12. 55. N. Lat. 54. 8.

ROSTOFF, or ROSTOW, a large town of the Russian empire, and capital of a territory of the same name, with an archbishop's see, seated on the lake Coteri, in E. Long. 40. 25. N. Lat. 57. 5. The duchy of Rostoff is bounded on the north by Jaroslaw, on the east by Sutdal, on the south by the duchy of Moscow, and on the west by that of Tuere.

ROSTRA, in antiquity, a part of the Roman forum, wherein orations, pleadings, funeral harangues, &c. were delivered.

ROSTRUM, literally denotes the beak or bill of a bird; and hence it has been figuratively applied to the beak or head of a ship.

ROSYCRUCIANS. See *ROSICRUCIANS*.

ROT, a very fatal disease incident to sheep, arising from wet seasons, and too moist pasture. It is very difficult of cure, and is attended with the singular circumstance of a kind of animals being found in the blood-vessels. See *Ovis* and *SHEEP*.

ROTA, the name of an ecclesiastical court of Rome, composed of 12 prelates, of whom one must be a German, another a Frenchman, and two Spaniards; the other eight are Italians, three of whom must be Romans, and the other five a Bolognese, a Ferraran, a Milanese, a Venetian, and a Tuscan.—This is one of the

Ros.folis
||
Rota

Rotaceæ
Rotation.

the most august tribunals in Rome, which takes cognizance of all suits in the territory of the church, by appeal; as also of all matters, beneficiary and patrimonial.

ROTACEÆ (from *rota*, "a wheel"), the name of the 20th order in Linnæus's Fragments of a Natural Method; consisting of plants with one flat, wheel-shaped petal, without a tube. See BOTANY, p. 461.

ROTALA, in botany; a genus of the monogynia order, belonging to the triandria class of plants. The calyx is tridentate; there is no corolla; the capsule is trilobular and polyspermous.

ROTANG. See CALAMUS.

Definition
and interesting
nature of
the subject.

ROTATION, is a term which expresses the motion of the different parts of a solid body round an axis, and distinct from the progressive motion which it may have in its revolution round a distant point. The earth has a rotation round its axis, which produces the vicissitudes of day and night; while its revolution round the sun, combined with the obliquity of the equator, produces the varieties of summer and winter.

The mechanism of this kind of motion, or the relation which subsists between the intensity of the moving forces, modified as it may be by the manner of application, and the velocity of rotation, is highly interesting, both to the speculative philosopher and to the practical engineer. The precession of the equinoxes, and many other astronomical problems of great importance and difficulty, receive their solutions from this quarter: and the actual performance of our most valuable machines cannot be ascertained by the mere principles of equilibrium, but require a previous acquaintance with certain general propositions of rotatory motion.

It is chiefly with the view of assisting the engineer that we propose to deliver in this place a few fundamental propositions; and we shall do it in as familiar and popular a manner as possible, although this may cause the application of them to the abstruse problems of astronomy to be greatly deficient in the elegance of which they are susceptible.

State of
the parti-
cles in mo-
ving round
an axis.

When a solid body turns round an axis, retaining its shape and dimensions, every particle is actually describing a circle round this axis, and the axis passes through the centre of the circle, and is perpendicular to its plane. Moreover, in any instant of the motion, the particle is moving at right angles with the radius vector, or line joining it with its centre of rotation. Therefore, in order to ascertain the direction of the motion of any particle P (fig. 1.), we may draw a straight line PC from the particle perpendicular to the axis AB of rotation. This line will lie in the plane of the circle Pmn of rotation of the particle, and will be its radius vector; and a line PQ drawn from the particle perpendicular to this radius vector will be a tangent to the circle of rotation, and will have the direction of the motion of this particle.

Plate
CCCXLII.

The whole body being supposed to turn together, it is evident, that when it has made a complete rotation, each particle has described a circumference of a circle, and the whole paths of the different particles will be in the ratio of these circumferences, and therefore of their radii; and this is true of any portion of a whole turn, such as $\frac{1}{2}$, $\frac{1}{4}$, or 20 degrees, or any arch whatever; therefore the velocities of the different particles are proportional to their radii vectores, or to their distances from the axis of rotation.

And, lastly, all these motions are in parallel planes, to which the axis of rotation is perpendicular.

When we compare the rotations of different bodies in respect of velocity, it is plain that it cannot be done by directly comparing the velocity of any particle in one of the bodies with that of any particle of the other; for, as all the particles of each have different velocities, this comparison can establish no ratio. But we familiarly compare such motions by the number of complete turns which they make in equal times, and we say that the second hand of a clock turns 60 times faster than the minute hand; now this comparison is equally just in any part of a turn as in the whole. While the minute-hand moves round one degree, the second-hand moves 60; therefore, as the length or number of feet in the line uniformly described by a body in its progressive motion is a proper measure of its progressive velocity, so the number of degrees described by any particle of a whirling body in the circumference of its circle of rotation, or the angle described by any radius vector of that body, is a proper measure of its velocity of rotation. And in this manner may the rotation of two bodies be compared; and the velocity is with propriety termed ANGULAR VELOCITY.

An angle is directly as the length of the circumference on which it stands, and inversely as the radius of the circle, and may be expressed by the fraction of which the numerator is the arch, and the denominator the radius. Thus the angle PCP may be expressed by $\frac{Pp}{PC}$. This fraction expresses the portion of the radius which is equal to the arch which measures the angle; and it is converted into the usual denomination of degrees, by knowing that one degree, or the 360th part of the circumference, is $\frac{1}{57,296}$ of the radius, or that

an arch of 57,296 degrees is equal to the radius.

When a solid body receives an impulse on any one point, or when that point is anyhow urged by a moving force, it cannot move without the other points also moving. And whatever is the motion of any particle, that in one body particle must be conceived as urged by a force precisely competent to the production of that motion, by acting immediately on the particle itself. If this is not the particle immediately acted on by the external force, the force which really impels it is a force arising from the cohesion of the body. The particle immediately impelled by the external force is pressed towards its neighbouring particles, or is drawn away from them; and, by this change of place, the connecting forces are brought into action, or are excited; they act on the particles adjoining, and change, or tend to change, their distances from the particles immediately beyond them; and thus the forces which connect this next series of particles are also excited, and another series of particles are made to exert their forces; and this goes on through the body till we come to the remote particle, whose motion we are considering. The forces which connect it with the adjoining series of particles are excited, and the particle is moved. We frequently say that the external moving force is propagated through the body to the distant particle; but this is not accurate. The particle is really and immediately moved by the forces which connect it with those adjoining. It

Rotation.

How the
rotation of
different
bodies in
respect of
velocity
may be
compared.

Effects, &c.
of the several
particles
connected
in one body
other.

Rotation.

will greatly assist our conception of the manner in which motion is thus produced in a distant particle, if we consider the particles as so many little balls, connected with each other by slender spiral springs like cork-screws. This would compose a mass which would be compressible, or which could be stretched, &c. And if we give an impulse to one of these balls, we shall set the whole assemblage in motion round any axis which we may suppose to support it. Now any one of these balls is really and immediately moved by the elasticity of the spiral wires which join it to its neighbours.

8
The forces by which the particles of bodies act on each other are equal, and the consequences.

We are but little acquainted with the nature of these connecting forces. It can be learned only by the phenomena which are their effects. These are various, almost beyond description; but the mechanical philosopher has little to do with this variety. The distinctions which are the immediate causes of fluidity, of hardness, softness, elasticity, ductility, are not of very difficult conception. There is one general fact which is sufficient for our present purpose—the forces by which the particles of bodies act on each other are equal. This is a matter of unexcepted experience; and no other foundation can be given to it as a law of mechanical nature.

An immediate consequence of this law is, that when two external forces A and B are in equilibrium by the intervention of a solid body (or rather when a solid body is in equilibrium between two external forces), these forces are equal and opposite; for the force A is in fact in immediate equilibrium with the opposite forces exerted by the particle to which it is applied, and is therefore equal and opposite to the force resulting from the combination of all the forces which connect that particle with the series of particles immediately adjoining. This resulting force may with propriety be called the equivalent of the forces from the combination of which it results. The use of this term will greatly abbreviate language. This first set of connecting forces consists of a number of distinct forces corresponding to each particle of the series, and each force has an equal and opposite force corresponding to it: therefore the compound force by which the first series of particles acts on that to which the external force A is applied, is equal and opposite to the compound force which connects this first series with the next series. And the same thing must be said of each succeeding series of particles, till we come at last to the particle to which the external force B is immediately applied. The force exerted by this particle is equal and opposite to that external force; and it is equal to the compound force exerted by the second series of particles on that side; therefore the forces A and B are equal and opposite.

10 It results from this proposition, that *when any number of external forces are applied to a solid body, and it is in equilibrium between them, they are such as would be in equilibrium if they were all applied to one point.* Let the forces aA, bB, cC (fig. 2.), be applied to three particles of the solid body. Therefore aA is immediately in equilibrium with an equal and opposite force $A\alpha$, resulting from the composition of the force AD, which connects the particles A and B, and the force AE which connects A with C. In like manner bB is immediately in equilibrium with $B\beta$, the equivalent of the forces BF and BG; and cC is in immediate equilibrium

with the equivalent $C\gamma$ of the forces CH and CI. We shall conceive it very clearly if we suppose the three forces $A\alpha, B\beta, C\gamma$, to be exerted by means of threads pulling at the solid body. The connecting parts between A and B, as also between A and C, are stretched. The lines AB and AC may be considered as elastic threads. Each thread is equally stretched through its whole length; and therefore if we take AD to represent the force with which the particle A is held back by the particle B, and if we would also represent the force with which B is held back by A, we must make BF equal to AD. Now (n^o 9.) the forces AD and BF are equal and opposite; so are the forces AE and CI; so are the forces CH and BG. Now it is evident, that if the six forces AD, BF, BG, CH, CI, AE, were applied to one particle, the particle would be in equilibrium; for each force is accompanied by an equal and opposite force: and if the force $A\alpha$ were applied in place of AD, AE, the equilibrium would remain, because $A\alpha$ is equivalent to AD and AE. The same is true of $B\beta$ and $C\gamma$. Therefore if the three forces $A\alpha, B\beta, C\gamma$, were applied to one point, they would be in equilibrium. Consequently if the three forces aA, bB, cC , which are respectively equal and opposite to $A\alpha, B\beta, C\gamma$, are so applied, they will be in equilibrium. It is plain that this demonstration may be extended to any number of forces.

We may just remark by the bye, that if three forces are thus in equilibrium, they are acting in one plane; and, if they are not parallel, they are really directed to one point: for any one of them must be equal and opposite to the equivalent of the other two; and this equivalent is the diagonal of a parallelogram, of which the other two are the sides, and the diagonal and sides of any parallelogram are in one plane; and since they are in one plane, and any one of them is in equilibrium with the equivalent of the other two, it must pass thro' the same point with that equivalent, that is, through the point of concurrence of the other two.

These very simple propositions are the foundation of the whole theory of statics, and render it a very simple branch of mechanical science. It has been made abstruse by our very attempts to simplify it. Many elaborate treatises have been written on the fundamental property of the lever, and in them all it has been thought next to an insuperable difficulty to demonstrate the equilibrium of a straight lever when the parallel forces are inversely as their distances from the fulcrum.

We think the demonstrations of Archimedes, Fossene, D'Alembert, and Hamilton, extremely ingenious; but they only bring the mind into such a state of conception that it cannot refuse the truth of the proposition; and, except Mr Hamilton's, they labour under the disadvantage of being applicable only to commensurable distances and forces. Mr Vince's, in the Philosophical Transactions for 1794, is the most ingenious of them all; and it is wonderful that it has not occurred long ago. The difficulty in them all has arisen from the attempt to simplify the matter by considering a lever as an inflexible straight line. Had it been taken out of this abstract form, and considered as what it really is, a natural body, of some size, having its particles connected by equal and opposite forces, all difficulty would have vanished.

Rotation.

II
Mechanical science has been rendered abstruse by attempts at simplification.

Rotation.

12
Mode of
conceiving
the magni-
tude of any
moving
force.

That we may apply these proportions to explain the motion of rotation, we must recollect an unquestionable proposition in dynamics, that the force which produces any motion is equal and opposite to the force which would prevent it, when applied in the same place and in the same line, or which would extinguish it in the same time in which we suppose it to be produced. Therefore the force which is excited and made to act on any particle of a body, by the action of an external force on another particle, so as to cause it to move round an axis, is equal and opposite to the force which, when applied to that particle in the opposite direction, would be in equilibrium with the external force.

13

The only distinct notion we can form of the magnitude of any moving force is the quantity of motion which it can produce by acting uniformly during some given time. This will be had by knowing the velocity which it will produce in a body of known bulk. Thus we know that the weight of ten pounds of matter acting on it for a second will cause it to fall 16 feet with an uniformly accelerated motion, and will leave it in a state such that it would move on for ever at the rate of 32 feet in a second; which we call communicating the velocity of 32 feet per second. In the same manner, the best way of acquiring a distinct conception of the rotatory effort of a moving force, is to determine the quantity of rotatory motion which it can produce by acting uniformly during some known time.

14
And of the
quantity
and effort
of rotatory
motions.

Let a solid body turn round an axis passing through the point C. (fig. 3.) perpendicular to the plane of this figure. Let this rotation be supposed to be produced by an external force acting in the direction FP. Let this force be such, that if the body were free, that is, unconnected with any axis supported by fixed points, it would, by acting uniformly during a small moment of time, cause its centre of gravity G (A) to describe a line of a certain length parallel to FP. This we know to be the effect of a moving force acting on any solid body in free space. The centre of gravity will always describe a straight line. Other particles may chance to move differently, if the body, besides its progressive motion, has also a motion of rotation, as is generally the case. Draw GI parallel to FP, and make GI to GC as the velocity which the external force would communicate to the centre of the body (if moving freely, unconnected with a supported axis), to the velocity which it communicates to it in the same time round the axis

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Rotation. Cc. Also let m be the number of equal particles, or the quantity of matter in the body. Then $m \cdot GI$ will express the quantity of motion produced by this force, and is a proper measure of it as a moving force; for GI is twice the space described during the given time with an uniformly accelerated motion.

But since the body cannot move any way but round the axis passing through C, the centre G will begin to move with the velocity, and in the direction, GH perpendicular to the line CG (nº 2.) And any particle A can only move in the direction AL, perpendicular to CA. Moreover, the velocities of the different particles are as their radii vectores; and CG is actually equal to the line GH, which expresses the velocity of a particle in G. Therefore CA will in like manner express the velocity of the particle A. If A express its quantity of matter, $A \cdot CA$ will express its quantity of motion, and will represent the force which would produce it by acting uniformly during the moment of time.

15

We expressed the external moving force by $m \cdot GI$. Part of it is employed in exciting the force $A \cdot CA$, which urges the particle A. In order to discover what part of the external force is necessary for this purpose, draw CP perpendicular to FP. The preceding observations show us, that the force wanted at A is equal to the force which, when applied at P in the direction FP, would balance the force $A \cdot CA$ applied to A in the direction LA. Therefore (by the property of the lever ACP, which is impelled at right angles at A and P) we must have CP to CA as the force $A \cdot CA$ to the balancing pressure, which must be exerted at P, or at any point in the line FP. This pressure is therefore $\frac{A \cdot CA \cdot CA}{CP}$ or $\frac{A \cdot CA^2}{CP}$. As we took $m \cdot GI$ for the measure of the whole external force, GI being the velocity which it would communicate to the whole body moving in free space, we may take Gi for the velocity which would be communicated to the whole body by the pressure $\frac{A \cdot CA^2}{CP}$, and then this pressure will be

16

properly expressed by $m \cdot Gi$. In like manner, $m \cdot ik$ may express the portion of the external force employed in communicating to another particle B the motion which it acquires; and so on with respect to all the particles of the body.

It must be desirable to see the manner in which the

3 S

forces

(A) We take this term in its usual sense, as expressing that point where the sum of the equal gravitations of each particle may be supposed united. It is by no means (though commonly supposed) the point where the equivalent of the real gravitations of the particles may be supposed to act, and to produce the same motion as when acting on each particle separately. It is this point only when all the particles gravitate alike, and in parallel directions. If the body were near the centre of the earth for instance, the gravitations of the different particles would neither be nearly equal nor in parallel lines; and the place of its real centre of gravity, on which the equivalent of its whole gravitation may be supposed to act, would be very different from G. Were we to denominate the point G, as usually determined, by its mathematical properties, we would call it the CENTRE OF POSITION; because its distance from any plane, or its position with respect to any plane, is the average distance and position of all the particles. The true designation of G is "the point through which if any plane whatever be made to pass, and if perpendiculars to this plane be drawn from every particle, the sum of all the perpendiculars on one side of this plane is equal to the sum of all the perpendiculars on the other side."

If we were to denominate G by its mechanical properties, we would call it the CENTRE OF INERTIA; for this is equal in every particle, and in the same direction: and it is not in consequence of gravity, but of inertia, that the body describes with the point G a line parallel to FP. We wish this remark to be kept in mind.

Rotation. forces are really concerned in giving motion to the different particles.

Suppose the external force to act immediately on the external particle F. The line FC connecting this particle with the axis in C is either stretched or compressed by the effort of giving motion to a remote particle A. It is plain that, in the circumstances represented in the figure, the line FC is compressed, and the axis is pushed by it against its supports in the direction Cx; and the body must, on this account, resist in the opposite direction Ff. The particle A is dragged out of its position, and made to begin its motion in the direction AL perpendicular to AC. This cannot be, unless by the connection of the two lines AC, AF. A resists by its inertia, and therefore both AC and AF are stretched by dragging it into motion. By this resistance the line AC tends to contract itself again, and it pulls C in the direction Cc, and A in the direction Aa; and if we take Cc to represent the action on C, Aa must be taken equal to it. In like manner AF is stretched and tends to contract, pulling F in the direction Fφ and A in the direction Aα with equal forces. Thus the particle A is pulled in the directions Aa and Aα; the particle F is pulled in the direction Fφ, and pushed in the direction Ff; and C is pulled in the direction Cc, and pushed in the direction Cx. Aa and Aα have produced their equivalent AL, by which A is dragged into motion; Ff and Fφ produce their equivalent Fg, by which the external force is resisted, and Fg is equal and opposite to m.Gi; the forces Cc and Cx produce their equivalent Cd by which the axis is pressed on its supports, and this is resisted by an equal and opposite reaction of the supports in the direction dC. The forces therefore which excite in the body the motion A.AL are both external, viz. the impelling force gF, and the supporting force dC. AL therefore is not only the immediate equivalent of Aa and Aα, but also the remote equivalent of gF and dC. We may therefore ascertain the proportion of gF (that is, of m.Gi) to AL (that is, of A.AC), independent of the property of the lever. gF is to AL in the ratio compounded of the ratios of gF to Fφ or Aα, and of Aα to AL. But we shall obtain it more easily by considering gF as the equivalent of AL and dC. By what has been demonstrated above, the directions of the three forces gF, AL, and dC must meet in one point E, and gF must be equal to the diagonal tE of the parallelogram Eet, of which the sides Ee, Et are respectively equal to AL and dC. Now tE is to Ee as the sine of the angle tEt to the sine of the angle Ete, that is, as the sine of CEA to the sine of CEP, that is, as CA to CP, as we have already demonstrated by the property of the lever. We preferred that demonstration as the shortest, and as abundantly familiar, and as congenial with the general mechanism of rotatory motions. And the intelligent reader will ob-

serve, that this other demonstration is nothing but the demonstration by the lever expanded into its own elements. Having once made all our readers sensible of this internal process of the excitement and operation of the forces which connect the particles, we shall not again have recourse to it.

It is evident that the sum of all the forces gF, or m.Gi, must be equal to the whole moving force m.GI. that m.Pp may be = m.GI. That is, we must have $m.GI = \frac{\int A.CA^2}{CP}$; or, because CP is given when the position of the line FP is given, we must have $m.GI = \frac{\int A.CA}{CP}$, where both A and CA are variable quantities.

This equation gives us $m.GI.CP = \int A.CA^2$. Now we learn in mechanics that the energy of any force applied to a lever, or its power of producing a motion round the fulcrum, in opposition to any resistance whatever, is expressed by the product of the force by the perpendicular drawn from the fulcrum on the line of its direction. Therefore we may call m.GI.CP the momentum (B), energy, or rotatory effort, of the force m.GI. And in like manner $\int A.CA^2$ is the sum of the momenta of all the particles of the body in actual rotation; and as this rotation required the momentum m.GI.CP to produce it, this momentum balances, and therefore may express the energy of all the resistances made by the inertia of the particles to this motion of rotation. Or $\int A.CA^2$ may express it. Or, take p to represent the quantity of matter in any particle, and r to represent its radius vector, or distance from the axis of rotation, $\int p.r^2$ will express the momentum of inertia, and the equilibrium between the momentum of the external force m.GI, acting in the direction FP, and the combined momenta of the inertia of all the particles of the whirling body, is expressed by the equation $m.GI.CP = \int A.CA^2 = \int p.r^2$. The usual way of studying elementary mechanics gives us the habit of associating the word equilibrium with a state of rest; and this has made our knowledge so imperfect. But there is the same equilibrium of the actual immediate pressures when motion ensues from the action. When a weight A descending raises a smaller weight B by means of a thread passing over a pulley, the thread is equally stretched between the acting and resisting weights. The strain on this thread is undoubtedly the immediate moving force acting on B, and the immediate resisting force acting on A.

The same equation gives us $GI = \frac{\int p.r^2}{m.CP}$.

Now $GI : CG = \frac{\int p.r^2}{m.CP} : CG, = \int p.r^2 : m.CP$. CG; but CG represents the velocity of the centre. Hence we derive this fundamental proposition $\int p.r^2 = m$.

(B) The word *momentum* is very carelessly used by our mechanical writers. It is frequently employed to express the product of the quantity of matter and velocity, that is, the quantity of motion; and it is also used (with strict propriety of language) to express the power, energy, or efficacy of a force to produce motion in the circumstances in which it acts. We wish to confine it to this use alone. Sir Isaac Newton adhered rigidly to this employment of the term (indeed no man exceeds him in precision of expression), even when he used it to express the quantity of motion: for in these instances the energy of this quantity of motion, as modified by the circumstances of its action, was always in the ratio of the quantity of motion.

Rotation.

Rotation.

$m \cdot CP \cdot CG = GI : CG$; or, that $\int p \cdot r^2$ is to $m \cdot CP \cdot CG$ as the velocity of the body moving freely to the velocity of the centre of gravity round the axis of rotation.

20 Therefore the velocity of the centre is $= \frac{m \cdot GI \cdot CP \cdot CG}{\int p \cdot r^2}$.

21 The velocity of any point B is $= \frac{m \cdot GI \cdot CP \cdot CB}{\int p \cdot r^2}$.

This fraction represents the length of the arch described by the point B in the same time that the body unconnected with any fixed points would have described GI.

22 Therefore the angular velocity (the arch divided by the radius) common to the whole body is $= \frac{m \cdot GI \cdot CP}{\int p \cdot r^2}$.

It may be here asked, how this fraction can express an angle? It evidently expresses a number; for both the numerator and denominator are of the same dimensions, namely, surfaces. It therefore expresses the portion of the radius which is equal to the arch measuring the angle, such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, &c. And to have this angle in degrees, we have only to recollect that the radius is $= 57,2958$.

23 This angular velocity will be a maximum when the axis of rotation passes through the centre of gravity G. For draw from any particle A the line Aa perpendicular to CG, and join AG. Then $CA^2 = GA^2 + CG^2 \pm 2 CG \times Ga$. Therefore $\int CA^2 = \int GA^2 + \int CG^2 \pm \int 2 CG \times Ga$, $= \int GA^2 + m \cdot CG^2 \pm \int 2 CG \times Ga$. But, by the nature of the centre of gravity, the sum of all the $+ Ga$ is equal to that of all the $- Ga$; and therefore $\pm \int 2 CG \times Ga$ is nothing; and therefore $\int CA^2 = \int GA^2 + m \cdot CG^2$.

Therefore $\int CA^2$ or $\int p \cdot r^2$ is smallest, and $\frac{m \cdot GI \cdot CP}{\int p \cdot r^2}$ is greatest when $m \cdot CG^2$ is nothing, or when CG is nothing; that is, when C and G coincide.

24 The absolute quantity of motion in the whirling body, or the sum of the motions of all its particles, is $\frac{m \cdot GI \cdot CP \cdot \int p \cdot r}{\int p \cdot r^2}$. For the motion of each particle is $\frac{m \cdot GI \cdot CP \cdot p \cdot r}{\int p \cdot r^2}$.

25 Ratio of the resistance of a quantity of matter to a motion of rotation.

The resistance which a given quantity of matter makes to a motion of rotation is proportional to $\int p \cdot r^2$. For this must be measured by the forces which must be similarly applied in order to give it the same angular motion or angular velocity. Thus let one external force be $m \cdot GI$, and the other $m \cdot \gamma$. Let both be applied at the distance CP. Let r be the radius vector in the one body, and r' in the other; now the angular velocities $\frac{m \cdot GI \cdot CP}{\int p \cdot r^2}$ and $\frac{m \cdot \gamma \cdot CP}{\int p \cdot r'^2}$ are equal by supposition. Therefore $m \cdot GI : m \cdot \gamma = \int p \cdot r^2 : \int p \cdot r'^2$.

As in the communication of motion to bodies in free space a given force always produces the same quantity of motion; so in the communication of motion to bodies obliged to turn round axes, a given force, applied at a given distance from the axes, always produces the same quantity of momentum. Whence it may easily be deduced (and we shall do it afterwards), that as in the communication of motion among free bodies the same quantity of motion is preserved, so in the communica-

tion of motion among whirling bodies the same quantity of whirling motion is preserved.

This is a proposition of the utmost importance in practical mechanics, and may indeed be considered as the fundamental proposition with respect to all machines of the rotatory kind when performing work; that is, of all machines which derive their efficacy from levers or wheels. There is a valuable set of experiments by Mr Smeaton in the Philosophical Transactions, Volume LXVI. which fully confirm it. We shall give an example by and by of the utility of the proposition, showing how exceedingly imperfect the usual theories of mechanics are which do not proceed on this principle.

With respect to the general proposition from which all these deductions have been made, we must observe, that the demonstration is not restricted to the time necessary for causing each particle to describe an arch equal to the radius vector. We assumed the radius vector as the measure of the velocity merely to simplify the notation. Both the progressive motion of the free body and the rotation of the whirling body are uniformly accelerated, when we suppose the external force to act uniformly during any time whatever; and the spaces described by each motion in the same time are in a constant ratio. The formulæ may therefore with equal propriety represent the momentary accelerations in the different cases.

It must also be observed, that it is not necessary to suppose that all the particles of the body are in one plane, and that the moving force acts in a line FP lying also in this plane. This was tacitly allowed, merely to make the present investigation (which is addressed chiefly to the practical mechanic) more familiar and easy. The equilibrium between the force $A \times CA$, which is immediately urging the particle A, and the force $m \cdot Gi$ employed at P or F, in order to excite that force at A, would have been precisely the same although the lines AC and FP had been in different planes, provided only that these planes were parallel. This is known to every person in the least acquainted with the wheel and axle. But if the external moving force does not act in a plane parallel to the circles of rotation of the different particles, it must be resolved into two forces, one of which is perpendicular to these planes, or parallel to the axis of rotation, and the other lying in a plane of rotation. And it is this last only that we consider as the moving force; the other tends merely to push the body in the direction of its axis, but has no tendency to turn it round that axis. When we come to consider the rotation of a body perfectly free, it will be necessary to attend particularly to this circumstance. But there are several important mechanical propositions which do not require this.

The motion of any body is estimated by that of its centre of gravity, as is well known. The difference between the motion of the centre of a free body and the motion of the centre of a body turning round an axis, is evidently owing to the connection which the parts of the body have with this axis, and to the action of the points of support on this axis. This action must be considered as another external force, combined with that which acts on the particle P, and therefore must be such as, if combined with it, would produce the very motion which we observe. That is, if

Rotation. we suppose the body unconnected with any fixed points, but as having its axis acted on by the same forces which these points exert, the body would turn as we observe it to do, the axis remaining at rest.

29 Therefore join I and H, and complete the parallelogram GIHK. It is plain that $m \cdot GK$ must represent the forces exerted by the axis on the fixed points.

30 If therefore GI should coincide with GH, and the point I with the point H, the force GK vanishes, and the body begins to turn round C, without exerting any pressure on the points of support; and the initial motion is the same as if the body were free. Or, the axis at C is then a *spontaneous* axis of conversion.

That this may be the case, it is necessary, in the first place, that the external force act in a direction perpendicular to CG; for GI is always parallel to FP: it being a leading proposition in dynamics, that when a moving force acts on any part whatever of a solid body, unconnected with fixed points, the centre of gravity will proceed in a straight line-parallel to the direction of that force. In the next place GH

must be equal to GI; that is, ($n^{\circ} 21$) $\frac{m \cdot GI \cdot CP \cdot CG}{\int p r^2}$

is equal to GI, or $\frac{m \cdot CP \cdot CG}{\int p r^2} = 1$, and $CP = \frac{\int p r^2}{m \cdot CG}$.

31 The equation $CP = \frac{\int p r^2}{m \cdot CG}$ gives us $m \cdot CG \cdot CP = \int p r^2 = \int A \cdot CA^2$. But it was shown ($n^{\circ} 23$), that $\int A \cdot CA^2 = \int A \cdot GA^2 + m \cdot CG^2$. Therefore $\int A \cdot GA^2 = m \cdot CG \cdot CP - m \cdot CG \cdot CG = m \cdot CG (CP - CG) = m \cdot CG \cdot GP$. Therefore we have (for another determination of the point of impulse P so as to annihilate all pressure on the axis) $GP = \frac{\int A \cdot GA^2}{m \cdot CG}$. This is generally the most easily obtained, the mathematical situation of the centre of gravity being well known.

32 N. B. When $CP = \frac{\int p r^2}{m \cdot CG}$, we shall always have the velocity of the centre the same as if the body were free, but there will always be a pressure on the points of support, unless FP be also perpendicular to CG. In other positions of FP the pressure on the axis, or on its points of support, will be $m \cdot GI \times 2 \sin. GCP$.

33 Advantage of annihilating or diminishing the pressure on the supports of the axis of motion. It would be a desirable thing in our machines which derive their efficacy from a rotatory motion, to apply the pressures arising from the power and from the resistance opposed by the work in such a manner as to annihilate or diminish this pressure on the supports of the axis of motion. Attention to this theorem will point out what may be done; and it is at all times proper, nay necessary, to know what are the pressures in the points of support. If we are ignorant of this, we shall run the risk of our machine failing in those parts; and our anxiety to prevent this will make us load it with needless and ill-disposed strength. In the ordinary theories of machines, deduced entirely from the principles of equilibrium, the pressure on the points of support (exclusive of what proceeds from the weight of the machine itself) is stated as the same as if the moving and resisting forces were applied immediately to these points in their own directions. But this is in all cases erroneous; and, in cases of swift motions, it is greatly so. We may be convinced of this by a very simple instance.

Suppose a line laid over a pulley, and a pound weight at one end of it, and ten pounds at the other; the pressure of the axis on its support is eleven pounds, according to the usual rule; whereas we shall find it only $3\frac{1}{7}$. For, if we call the radius of the pulley 1, the momentum of the moving force is $10 \times 1 = 1 \times 1$, = 9; and the momentum of inertia is $10 \times 1^2 + 1 \times 1^2$, ($n^{\circ} 18$.) = 11. Therefore the angular velocity is $\frac{9}{11}$. But the distance CG of the centre of gravity from the axis of motion is also 1, because we may suppose the two weights in contact with the circumference of the pulley. Therefore the velocity of the centre of gravity is $\frac{9}{11} \times 1 = \frac{8}{11}$ of its natural velocity. It is therefore diminished $\frac{4}{11}$ by the figure of the axis of the pulley, and the 11 pounds press it with $\frac{4}{11}$ of their weight that is, with $3\frac{1}{7}$ pounds.

Since all our machines consist of inert matter, which requires force to put it in motion, or to stop it, or to change its motion, it is plain that some of our natural power is expended in producing this effect; and since the principles of equilibrium only state the proportion between the power and resistance which will preserve the machine at rest, our knowledge of the actual performance of a machine is imperfect, unless we know how much of our power is thus employed. It is only the remainder which can be stated in opposition to the resistance opposed by the work. This renders it proper to give some general propositions, which enable us to compute this with ease.

It would be very convenient, for instance, to know some point in which we might suppose the whole rotatory part of the machine concentrated; because then we could at once tell what the momentum of its inertia is, and what force we must apply to the impelled point of the machine, in order to move it with the desired velocity.

Let S, fig. 3. be this point of a body turning round the supported axis passing through C; that is, let S be such a point, that if all the matter of the body were collected there, a force applied at P will produce the same angular velocity as it would if applied at the same point of the body having its natural form.

The whole matter being collected at S, the expression $\frac{m \cdot GI \cdot CP}{\int p r^2}$ of the angular velocity becomes $\frac{m \cdot GI \cdot CP}{m \cdot CS^2}$ ($n^{\circ} 22$); and these are equal by supposition. Therefore $\int p r^2 = m \cdot CS^2$, and $CS = \sqrt{\frac{\int p r^2}{m}}$.

This point S has been called the CENTRE OF GYRATION.

In a line or slender rod, such as a working beam, or the spoke of a wheel in a machine, CS is $\sqrt{\frac{1}{3}}$ of its length.

In a circle or cylinder, such as the solid drain of a capstan, $CS = \sqrt{\frac{1}{2}}$ its radius, or nearly $\frac{1}{\sqrt{2}}$. But if it turns round one of its diameters, $CS = \frac{1}{2}$ radius.

In the periphery of a circle, or rim of a wheel, $CS =$ radius nearly.

If it turn round a diameter, $CS = \sqrt{\frac{1}{2}}$ radius. The surface of a sphere, or a thin spherical shell, turning round a diameter, has $CS = \sqrt{\frac{2}{5}}$ radius, or nearly $\frac{2}{5}$ or $\frac{1}{2}$.

A solid sphere turning round a diameter has $CS = \sqrt{\frac{2}{5}}$ radius, or nearly $\frac{2}{5}$. This is useful in the problem.

34 of knowing the momentum of inertia;

35 And consequently the force necessary to overcome it.

blem of the precession of the equinoxes. We may observe by the way, that if we consider the whirling body as a system of several bodies with rigid or inflexible connections, we may consider all the matter of each of these bodies as united in its centre of gyration, and the rotation of the whole will be the same; for this does not change the value of $\frac{\int p r^2}{m}$.

There is another way of making this correction of the motion of a machine, or allowing for the inertia of the machine itself, which is rather simpler than the one now given. We can suppose a quantity of matter collected at the point to which the moving force is applied, such that its inertia will oppose the same resistance to rotation that the machine does in its natural form. Suppose the moving force applied at P, as before, and that instead of the natural form of the body a quantity of matter = $\frac{\int p r^2}{C P}$, collected at P; the moving force

will produce the same angular velocity as on the body, in its natural form. For the angular velocity in this case must be $\frac{m \cdot G I \cdot C P}{\int p r^2 \cdot C P^2}$ (n^o 22.), which is $\pm \frac{m \cdot G I \cdot C P}{\int p r^2}$

the same as before.

A point O may be found, at such a distance from the axis, that if all the matter of the body were collected there, and an external force $m \cdot G I$ applied to it in a direction perpendicular or any how inclined to C O, it will produce the same angular velocity as when applied to the centre of gravity G, with the same inclination to the line C G.

In this case, the angular velocity must be $\frac{m \cdot G I \cdot C O}{m \cdot C O^2}$ (n^o 22.), which is $\frac{G I}{C O}$. This must be equal (by

supposition) to the angular velocity where the same force $m \cdot G I$ is applied in the same inclination to G.—

The angular velocity in this case must be $\frac{m \cdot G I \cdot C G}{\int p r^2}$

Therefore we have $\frac{G I}{C O} = \frac{m \cdot G I \cdot C G}{\int p r^2}$, and $\frac{C O}{G I} =$

$\frac{\int p r^2}{m \cdot G I \cdot C G}$, and $C O = \frac{\int p r^2}{m \cdot C G}$. Also, as in n^o 31.

$G O = \frac{\int A \cdot G A^2}{m \cdot C G}$.

This point O has several remarkable properties.

In the first place, it is the point of a common heavy body swinging round C by its gravity, where, if all its weight be supposed to be concentrated, it will perform its oscillations in the same time. For while the body has its natural form, the whole force of gravity may be supposed to be exerted on its centre of gravity. When the matter of the body is collected at O, the force of gravity is concentrated there also; and if C G have the same inclination to the horizon in the first case that C O has in the second, the action of gravity will be applied in the same angle of inclination, and the two bodies will acquire the same angular velocity; that is, they will descend from this situation to the vertical situation (that is, through an equal angle) in the same time. These two bodies will therefore oscillate in equal times. For this reason, the point O so taken in the line

CG, which is the radius vector of the centre of inertia, that C O is equal to $\frac{\int A \cdot C A^2}{m \cdot C G}$, or $G O = \frac{\int A \cdot G A^2}{m \cdot C G}$.

is called the CENTRE OF OSCILLATION of the body; and a heavy point suspended by a thread of the length C O is called its *equivalent* or *synchronous pendulum*, or the *simple pendulum*, corresponding to the body itself, which is considered as a *compound pendulum*, or as consisting of a number of simple pendulums, which by their rigid connection disturb each other's motions.

That C O may be the equivalent pendulum, and O the centre of oscillation, O must be in the line C G, otherwise it would not rest in the same position with the body, when no force was keeping it out of its vertical position. The equation $C O = \frac{\int A \cdot C A^2}{m \cdot C G}$ only deter-

mines the distance of the centre of oscillation from the centre of suspension, or the length of the equivalent simple production, but does not determine the precise point of the body occupied by the centre of oscillation; a circumstance also necessary in some cases.

Mathematicians have determined the situation of this point in many cases of frequent occurrence. Huyghens, in his *Horologium Oscillatorium*, and all the best writers of treatises of mechanics, have given the method of investigation at length. The general process is, to multiply every particle by the square of its distance from the axis of suspension, and to divide the sum of all these products by the product of the whole quantity of matter multiplied by the distance of its centre of gravity from the same axis. The quotient is the distance of the centre of oscillation, or the length of the equivalent

simple pendulum: for $C O = \frac{\int p r^2}{m \cdot C G}$.

a. If the body is a heavy straight line, suspended by one extremity, C O is $\frac{2}{3}$ of its length.

b. This is nearly the case of a slender rod of a cylindrical or prismatic shape. It would be exactly so if all the points of a transverse section were equally distant from the axis of suspension.

c. If the pendulum is an isosceles triangle suspended by its apex, and vibrating perpendicularly to its own plane, C O is $\frac{3}{4}$ of its height.

d. This is nearly true of a very slender triangle (that is, whose height many times exceeds its base) swinging round its vertex in any direction.

e. In a very slender cone or pyramid swinging from its vertex C O, is $\frac{4}{5}$ of its height nearly.

f. If a sphere, of which r is the radius, be suspended by a thread whose weight may be neglected, and whose length is l , the distance between its centre of suspension and centres of oscillation is $a + \frac{r^2}{a + r}$; and

the distance between its centres of bulk and oscillation is $\frac{r}{a + r}$. Thus, in a common second's pendulum,

whose length at London is about 39 $\frac{1}{2}$ inches, the centre of oscillation will be found about $\frac{1}{100}$ of an inch below the centre of the ball, if it be two inches in diameter.

g. If the weight of the thread is to be taken into the account, we have the following distance between the centre of the ball and that of oscillation, where B is the weight of the ball, a the distance of the point

Rotation

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Mode of determining its situation

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e proper
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or

Rotation. of suspension and its centre, d the diameter of the ball, and w the weight of the thread or rod,

$$GO = \frac{(\frac{1}{2}w + \frac{3}{2}B) d^2 - \frac{1}{8}w (ad + a^2)}{(\frac{1}{2}w + B) a - \frac{1}{2}dw}$$
: or, if we consider the weight of the thread as an unit, and the weight of the ball as its multiple (or as expressed by the number of times it contains the weight of the thread),

$$GO = \frac{\frac{3}{8}a}{B + \frac{1}{2}}.$$

41 As the point O, determined as above, by making

$$CO = \frac{\int p r^2}{m.CG},$$

is the centre of oscillation of the body turning round C, so C is the centre of oscillation of the same body turning round O: for, resuming A.CA in place of pr , we have $\int A.CA^2 = m.CO.CG$. Now $\int A.CA^2 = \int A.OA^2 + \int A.OC^2 - \int A.OC.2 O \dot{a}$, (Euclid, II. 12. 13.), or $m.CO.CG = \int A.OA^2 + \int A.OC^2 - \int A.OC.2 O \dot{a}$. But $\int A.OC^2 = m.OC^2 = m.OC.OC$; and (by the nature of the centre of gravity) $\int A.OC.2 O \dot{a} = m.OC.2 OG$. Therefore we have $m.CO.CG = \int A.OA^2 + m.OC.OC - m.OC.2 OG$; and $\int A.OA^2 = m.OC.CG + m.CO.2 OG - m.CO.CO$, $= m.CO (CG + 2 OG - CO)$. But $CG + 2 OG - CO$ is equal to $CO + OG$, and $CG + 2 OG - CO$ is equal to OG . Therefore $\int A.OA^2 = m.CO.OG$, and

$$CO = \frac{\int A.OA^2}{m.OG},$$

which is all that is wanted (according to n° 39.) to make C the centre of oscillation when O is the centre of suspension.

42 If the point of suspension, or axis of rotation, be anywhere in the circumference of a circle of which G is the centre, the point O will be in the circumference of another circle of which G is the centre: for, by n° 38.

$$GO = \frac{SA.GA^2}{m.CG}.$$

Now $\int A.GA^2$ is a fixed quantity; and therefore while CG is constant, OG will also be constant.

43 We may also observe, that the distance of the axis from the centre S of gyration is a mean proportional between its distance from the centre G of gravity and the centre O of oscillation: for we had (n° .)

$$CS^2 = \frac{\int p r^2}{m}, \text{ and } CO = \frac{\int p - r^2}{m.CG}, \text{ and therefore}$$

$$CO.CG = \frac{\int p r^2}{m} = CS^2 \text{ and } CO : CS = CS : CG.$$

44 We see also that the distance CO is that at which an external force must be applied; so that there may not be any pressure excited in the axis upon its points of support, and the axis may be a spontaneous axis of conversion. This we learn, by comparing the value of CO with that of CP in art. 30. This being the case, it follows, that if an external force is applied in a direction passing thro' O, perpendicularly to CO, it will produce the same initial velocity of the centre as if the body were free: for as it exerts no pressure on the points of support, the initial motion must be the same as if they were not there.

45 If the external force be applied at a greater distance in the line CG, the velocity of the centre will be greater than if the body were free. In this case the pressure excited in the axis will be backward, and consequently the points of support will re-act forward, and this re-action will be equivalent to another external

force conspiring with the one applied at O. Some curious consequences may be deduced from this.

If the external force be applied to a point in the line GC, lying beyond C, the motion of the centre will be in the opposite direction to what it would have taken had the body been free, and so will be the pressures exerted by the points of support on the axis.

A force $m.GI$ applied at P produces the initial progressive motion $m.GH$; and any force applied at O, perpendicularly to CG, produces the same motion of the centre as if the body were free. Therefore a force $m.GH$ applied thus at O will produce a motion $m.GH$ in the centre, and therefore the same motion which $m.GI$ applied at P would produce; and it will produce the momentum $m.GI$ at P. Therefore if a force equal to the progressive motion of the body be applied at O, perpendicularly to CO, in the opposite direction, it will stop all this motion without exciting any strain on the axis or points of support. Therefore the equivalent of all the motions of each particle round C is conceived as passing through O in a direction perpendicular to CO; and the blow given by that point to any body opposed to its motion is considered as equal to the compounded effect of the rotatory motion, or to the progressive motion of the body combined with its rotation.

For such reasons O has been called the CENTRE OF IMPROPER PERCUSSION of the body turning round C. But the name of centre of momentum, or rotatory effort, would have been more proper.

We can feel this property of the point O when we give a smart blow with a stick. If we give it a motion round the joint of the wrist only, and strike smartly with a point considerably nearer or more remote than $\frac{2}{3}$ of its length, we feel a painful shock or wrench in the hand; but if we strike with that point which is precisely at $\frac{2}{3}$ of its length, we feel no such disagreeable strain.

Mechanical writers frequently say, that O considered as the centre of percussion, is that with which the most violent blow is struck. But this is by no means true; O is that point of a body turning round C which gives a blow precisely equal to the progressive motion of the body, and in the same direction. As we have already said, it is the point where we may suppose the whole rotatory momentum of the body accumulated. Every particle of the body is moving in a particular direction, with a velocity proportional to its distance from the axis of rotation; and if the body were stopped in any point, each particle tending to continue its motion endeavours to drag the rest along with it. Whatever point we call the centre of percussion should have this property, that when it is stopped by a sufficient force, the whole motion and tendency to motion of every kind should be stopped; so that if at that instant the supports of the axis were annihilated, the body would remain in absolute rest.

The consideration of a very simple case will show that this point of stoppage cannot be taken indifferently. Suppose a square or rectangular board CDD'C, fig. 4. advancing in the direction GH, perpendicular to its plane, without any rotation. Let G be the centre of gravity, and the middle of the board. It is evident, that if a force be applied at G, in the direction HG, and

46 Why the point is sometimes called the centre of percussion.

47

48 Improper term.

49

50 Centre of percussion how defined.

and equal to the quantity of motion of the board, all motion will be stopped: for when the point G is stopped, no reason can be assigned why one part of the board shall advance more than another. The same thing must happen if the board be stopped by a straight edge put in its way, and passing through G : for example, in the line LGM , or gGb . But if this edge be so placed that the board shall meet it with the line IPK , then, because this line does not divide it equally, and because there is a greater quantity of motion in the part $CIKC'$ than in the part $IDDK$, though the progressive motion may be stopped, the upper part will advance, and a motion of rotation will commence, of which IK will be the axis. Now suppose that the board, instead of having been moving along in the direction GH , every part with the same velocity had been swinging round the axis CC' like a pendulum, from the position $Cdd'C'$, and that it is stopped by a straight edge meeting it in the line LGM parallel to CO' , in the moment that it has attained the vertical position $CDD'C'$; all its motion will not be stopped: for, although LGM divides the board equally, there is more motion in the lower part $LDD'M$ than in the upper part $CLMC'$, because every particle of the lower part is describing larger circles and moving swifter. Therefore when the line LGM is stopped, there will be a tendency of the lower part to advance, and the pivots C and C' of the axis will be pressed backwards on their holes; and if the holes were at that instant removed, a rotation would commence, of which LM is the axis. The board must therefore be stopped in some line IPK below LGM , and so situated, that the sum of all the momenta on each side of it shall be equal. This alone can hinder a rotation round the axis IPK . From what has been already demonstrated, it appears, that this will be prevented if the edge meets the board in a line IPK , passing through O the centre of oscillation, which is situated in the line gGb passing through the centre of gravity perpendicular to the axis CC' . This line IOK may therefore be called the line or axis of percussion.

But any point of this line will not do. It is evident that if the board should meet the fixed edge in the line $gGO b$, all motion will be stopped, for the motions on each side are equal, and neither can prevail. But if it be stopped in the line pPq , there is more motion in the part $p q D'C'$ than in the part $p q DC$; and if the supports at C and C' were that instant taken away, there would commence a rotation round the axis $p q$. Consequently, if the body were not stopped by an edge, but by a simple point at P , this rotation would take place. The motions above and below P would indeed balance each other, but the motions on the right and left sides of it would not. Therefore it is not enough for determining the centre of percussion that we have ascertained its distance gO from the axis of rotation by

the equation $gO = \frac{\int pr^2}{mgG}$. This equation only gives us the line IOK parallel to CC' , but not the point of percussion. This point (suppose it P) must be such that if any line pPq be drawn through it, and considered as an axis round which a rotation may commence, it shall not commence, because the sum of all the momenta round this axis on the right side is equal to the

sum of the momenta on the left. Let us investigate in what manner this condition may be secured.

Let there be a body in a state of rotation round the axis Dd (fig. 5.), and let G be its centre of gravity, and CGO a line through the centre of gravity perpendicular to the axis DCd . At the moment under consideration, the centre of gravity is moving in the direction GH , perpendicular to the radius vector GC , as also perpendicular to a plane passing through the lines Dd and CG . Let O be the centre of oscillation. Draw the line nO parallel to Dd . The centre of percussion must be somewhere in this line. For the point of percussion, wherever it is, must be moving in the same direction with the progressive motion of the body, that is, in a direction parallel to GH , that is, perpendicular to the plane DCG . And its distance from the axis Dd must be the same with that of the centre of oscillation. These conditions require it therefore to be in some point of nO . Suppose it at P . Draw Pp perpendicular to Dd . P must be so situated, that all the momenta tending to produce a rotation round the line pP may balance each other, or their sum total be nothing.

Now let A be any particle of the body which is out of the plane DCG , in which lie all the lines CGO , pP , nO , &c. Draw its radius vector Aa perpendicular to Dd , and draw an parallel to CG , and therefore perpendicular to Dd . The plane Aan is perpendicular to the plane Dan (Euclid, XI. 4). Draw AL perpendicular to Aa , and $A/$ perpendicular to an . Then, while the body is beginning to turn round Dd , the incipient motion of the particle A is in the direction AL , perpendicular to its radius vector Aa . This motion AL may be considered as compounded of the motion $A/$, perpendicular to the plane DCG , and the motion $L/$ in this plane. It is evident that it is $A/$ only which is opposed by the external force stopping the body at P , because $A/$ alone makes any part of the progressive motion of the centre of gravity in the direction GH .

We have hitherto taken the radii vectores for the measures of the velocities or motions of the particles. Therefore the quantity of motion or the moving force of A is $A.Aa$, and this is exerted in the direction AL , and may be conceived as exerted on any point in this line; and therefore on the point L . That is, the point L might be considered as urged in this direction with the force $A.Aa$, or with the two forces of which the force $A.Aa$ is compounded. The force in the direction AL is to the force in the direction $A/$ as AL to $A/$, or as aA to $a/$, because the triangles A/L and a/A are similar. Therefore, instead of supposing the point L urged by the force $A.Aa$, acting in the direction AL , we may suppose it impelled by the force $A.a/$, acting perpendicularly to the line $A/$, or to the plane DCG , and by the force $A.A/$ acting in this plane, viz. in the direction Ln . This last force has nothing to do with the percussion at P . Therefore we need consider the point L as only impelled by the force $A.A/$. The momentum of this force, or its power to urge the plane DCG forward in the direction GH , by turning it round Dd , must be $A.a/ . aL$. (*N. B.* This is equal to $A.Aa^2$, because $a/ : aA = aA : aL$, and $A.Aa^2$, has been shown long ago to be the general

Rotation. neral expreffion of the rotatory momentum of a particle).

Draw Lm perpendicular to Pp . If we confider Pp as an axis about which a motion of rotation may be produced, it is plain that the momentum of the point L to produce fuch a rotation will be $A.al.Lm$. In like manner, its momentum for producing a rotation round nP would be $A.al.Ln$. In general, its momentum for producing rotation round any axis is equal to the product of the perpendicular force at L (that is, $A.al$) and the diftance of L from this axis.

In order therefore that P may be the centre of percuffion, the fum of all the forces $A.al.Lm$ must be equal to nothing; that is, the fum of the forces $A.al.Lm$ on one fide of this axis Pp must be balanced by the fum of forces $A'.a'l'.L'm'$ on the other fide. To exprefs this in the ufual manner, we must have $\sum A.al.nP = 0$. But $nP = nO - OP$. Therefore $\sum A.al.nO - \sum A.al.OP = 0$, and $\sum A.al.nO = \sum A.al.OP$. But OP is the fame wherever the particle A is fituated; and becaufe G is the centre of gravity, the fum of all the quantities $A.al$ is $m.GC$, m being the quantity of matter of the body; that is, $\sum A.al = m.GC$, and $\sum A.al.OP = m.GC.OP = \sum A.al.nO$. Hence we derive the final equation

$$OP = \frac{\sum A.al.nO}{m.GC}.$$

53 Therefore the centre of percuffion P of a body turning round the axis Dd is determined by thefe conditions: 1st, It is in the plane DCG paffing through the axis and the centre of gravity; 2d, It is in a line nO paffing through the centre of ofcillation, and parallel to the axis, and therefore its diftance PP from the axis of rotation is $\frac{\sum A.Aa^2}{m.CG}$; and, 3d, Its diftance OP from the centre of ofcillation is $\frac{\sum A.al.nO}{m.CG}$.

54 How b-th centres coincide.

In order therefore that the centres of ofcillation and percuffion may coincide, or be one and the fame, OP must vanish, or $\sum A.al.nO$ must be equal to nothing, that is, the fum of all the quantities $A.al.nO$ on one fide of the line CO must be equal to the fum of all the quantities $A'.a'l'.n'O$ on the other fide.

55 Let $Dd\Delta$ be a plane paffing through the axis Dd perpendicular to that other plane DCG through it, in which the centre of gravity is fituated, and let $Cg\gamma$ be a third plane paffing through the centre of gravity perpendicular to both the planes $Dd\Delta$ and DCG . Draw lr and ax perpendicular to aL , and $r\hat{a}$ perpendicular to cr , and then draw Aa , $A\hat{a}$ perpendicular to ax and $r\hat{a}$. It is evident that Aa and $A\hat{a}$ are refpectively equal to al and lr , or to $a\hat{l}$ and $n\hat{o}$; fo that the two factors or constituents of the momentum of a particle A round the centre of percuffion are the diftances of the particle from the planes $Dd\Delta$ and cgy , both of which are perpendicular to that plane through the axis in which the centre of gravity is placed.

We may fee, from thefe obfervations, that the centres of ofcillation and percuffion do not neceffarily coincide, and the circumftance which is neceffary for their coincidence, viz. that $\sum A.Aa.A\hat{a}$ is equal to O . It is of importance to keep this in mind.

56 Further confiderations of importance.

There occurs here another obfervation of great importance. Since every force is balanced by an equal

force acting in the oppofite direction, and fince all motion progreffive and rotatory is ftopped by an external force applied at P in the direction qP , it follows that, if the body were at reft, and the fame force be applied there, it will fet the body in rotation round the axis Dd , in the oppofite direction, with the fame angular velocity, and without any preffure on the pivots D and d . For whatever motion of the particle A , in the direction AL , was ftopped by a part of the external force applied at P , the fame motion will be produced by it in the quiefcent particle A in the oppofite direction LA . And as the pivots D and d had no motion in the cafe of the body turning round them, they will acquire no motion, or will have no tendency to motion, or no preffure will be exerted on them, in the laft cafe. Therefore when an external force is applied at P in a direction perpendicular to the line Pp , the line Dd will become a momentary fpontaneous axis of converfion, and the incipient motion of the body will perfectly refemble the rotation of the fame body round a fixed axis Dd .

There is another fet of forces of which we have as yet taken no notice, viz. that part of each force AL which is directed along the plane DCG , and is represented by lL when the whole force is represented by AL , or by $A\hat{l}$ when the whole force is represented by Aa . Thefe forces being all in the plane DCG , and in the direction CG or GC , can have no effect on the rotation round any axis in that plane. But they tend, feparately, to produce rotation round any axis paffing through this plane perpendicularly. And the momentum of A to produce a rotation round an axis perpendicular to this plane, in O for inftance, muft evidently be $A.A\hat{l}.nO$, and round P it muft be $A.A\hat{l}.nP$, &c. We fhall have occafion to confider thefe afterwards.

It is ufual in courfes of experimental philofophy to 58 Of balls, cylinders, rolling down inclined planes. illustrate the motions of bodies on inclined planes and curved fufaces by experiments with balls rolling down thefe fufaces. But the motions of fuch rolling balls are by no means juft representations of the motions they represent. The ball not only goes down the inclined plane by the action of gravity, but it alfo turns round an axis. Force is neceffary for producing this rotation; and as there is no other fource but the weight of the ball, part of this weight is expended on the rotation, and the remainder only accelerates it down the plane. The point of the ball which refts on the plane is hindered from fiding down by friftion; and therefore the ball tumbles, as it were, over this point of contact, and is infantly caught by another point of contact, over which it tumbles in the fame manner. A cylinder rolls down in the very fame way; and its motion is nearly the fame as if a fine thread had been lapped round it, and one end of it made faft at the head of the inclined plane. The cylinder rolls down by unwinding this thread.

59 The mechanism of all fuch motions (and fome of Mechanifm of thefe motions) may be underftood by confidering them as follows: Let a body of any fhape be connected with a cylinder FCB (fig. 6.) whole axis paffes through G the centre of gravity of the body. Suppofe that body fufpended from a fixed point A by a thread wound round the cylinder. This body will defcend by the action of gravity, and it will alfo turn round, unwinding the thread. Draw the horizontal line

Rotation. line OGC. It will pass through the point of contact C of the thread and cylinder, and C is the point round which it begins to turn in descending. Let O be its centre of oscillation corresponding to the momentary centre of rotation C. It will begin to descend in the same manner as if all its matter were collected in O: for it may be considered, in this instant, as a pendulum suspended at C. But in this case O will descend in the same manner as if the body were falling freely. Therefore the velocity of G (that is, the velocity of descent) will be to the velocity with which a heavy body would fall as CG to CO. Now since the points C, G, O, are always in a horizontal line, and the radius CG is given; as also CO (n° 48.) the velocity of a body falling freely, and of the body unwinding from this thread, will always be in the same proportion of CO to CG, and so will the spaces described in any given time. And thus we can compare their motions in every case when we know the place of the centre of oscillation.

Cor. 1. The weight of the descending body will be to the tension of the thread as CO to GO: for the tension of the thread is the difference between the momentum of the rolling body and that of the body falling freely.

Observe, that this proportion between the weight of the body and the tension of the thread will be always the same: for it has been demonstrated already, n° 42. that if C be in the circumference of a circle whose centre is G, O will be in the circumference of another circle round the same centre, and therefore the ratio of CG to CO is constant.

Cor. 2. If a circular body FCB roll down an inclined plane by unfolding a thread, or by friction which prevents all sliding, the space described will be to that which the body would describe freely as CG to CO: for the tendency down the inclined plane is a determined proportion of the weight of the body. The motion of rotation in these cases, both progressive and whirling, is uniformly accelerated.

Something of the same kind obtains in common pendulous bodies. A ball hung by a thread not only oscillates, but also makes part of a rotation; and for this reason its oscillations differ from those of a heavy point hanging by the same thread, and the centre of oscillation is a little below the centre of the ball. A ball hung by a thread, and oscillating between cycloidal cheeks, does not oscillate like a body in a cycloid, because its centre of oscillation is continually shifting its place. Huyghens avoided this by suspending his pendulous body from two points, so that it did not change its attitude during its oscillation. If our spring-carriages were hung in this manner, having the four lower staples to which the straps are fixed as far asunder as the four upper staples at the ends of the springs, the body of the carriage would perform its oscillations without kicking up and down in the disagreeable manner they now do, by which we are frequently in danger of striking the glasses with our heads. The swings would indeed be greater, but incomparably easier; and we could hold things almost as steadily in our hand as if the carriage were not swinging at all.

This will suffice for an account of the rotation round fixed axes, as the foundation for a theory of machines actually performing work. The limits of our understanding.

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taking will not allow us to do any more than just point out the method of applying it.

Let there be any machine of the rotatory kind, i. e. composed of levers or wheels, and let its construction be such, that the velocity of the point to which the power is applied (which we shall call the *impelled point*) is to the velocity of the working point in the ratio of *m* to *n*. It is well known that the energy of this machine will be the same with that of an axis in peritrochio, of which the radii are *m* and *n*.

Let *p* express the actual pressure exerted on the impelled point by the moving power, and let *r* be the actual pressure or resistance exerted on the working point by the work to be performed. Let *x* be the inertia of the power, or the quantity of dead matter which must move with the velocity of the impelled point in order that the moving power may act. Thus the moving power may be the weight of a bucket of water in a water-wheel; then *x* is the quantity of matter in this bucket of water. Let *y* in like manner be the inertia of the work, or matter which must be moved with the velocity of the working-point, in order that the work may be performed. Thus *y* may be a quantity of water which must be continually pushed along a pipe. This is quite different from the weight of the water, though it is proportional to it, and may be measured by it.

Let *f* be a pressure giving the same resistance when applied at the working-point with the friction of the machine, and let *an*² be the momentum of the machine's inertia, viz. the same as if a proper quantity of matter *a* were attached to the working-point, or to any point at the same distance from the axis.

This state of things may be represented by the wheel and axle PQS (fig. 7.) where *x* and *y* and *a* are represented by weights acting by lines. P is the impelled point, and R the working-point; CP is *m* and CR is *n*. The moving force is represented by PA, the resistance by RB, and the friction by BF.

It is evident that the momentum of the inertia of *x*, *y*, and *a* are the same as if they were for a moment attached to the points P and R.

Hence we derive the following expressions,

$$1. \text{ The angular velocity } = \frac{pm - r + fn}{xm^2 + y + an^2}.$$

$$2. \text{ Velocity of the working-point } = \frac{pmn - r + fn^2}{xm^2 + y + an^2}.$$

$$3. \text{ Work performed } = \frac{pmnr - r + fn^2r}{xm^2 + y + an^2}.$$

For the work is proportional to the product of the resistance and the velocity with which it is overcome.

We shall give a very simple example of the utility of these formulæ. Let us suppose that water is to be raised in a bucket by the descent of a weight, and that the machine is a simple pulley. Such a machine is described by Desaguliers*, who says he found it preferable to all other machines. The bucket dipped itself in the cistern. A chain from it went over a pulley, and at its extremity was a stage on which a man could step from the head of a stair. His preponderance brought down the stage and raised the bucket, which discharged its water into another cistern. The man quit the stage, and walked up stairs, and there he found

63
Method of applying this theory to rotation to practice.

64
Formulæ, and their use in practice

65

66

Rotation. it ready to receive him, because the empty bucket is made heavier than the empty stage.

Now, if there be no water in the bucket, it is evident, that although the motion of the machine will be the quickest possible, there will be no work performed. On the other hand, if the loaded stage and the full bucket are of equal weight, which is the usual statement of such a machine in elementary treatises of mechanics, the machine will stand still, and no work will be performed. In every intermediate state of things the machine will move, and work will be performed. Therefore the different values of the work performed must be a series of quantities which increase from nothing to a certain magnitude, and then diminish to nothing again. The maxim which is usually received as a fundamental proposition in mechanics, viz. that what is gained in force by the intervention of a machine is lost in time, is therefore false. There must be a particular proportion of the velocities of the impelled and working-points, which will give the greatest performance when the power and resistance are given; and there is a certain proportion of the power and resistance which will have the same effect when the structure of the machine has previously fixed the velocities of the impelled and working points.

67 This proportion will be found by treating the formula which expresses the work as a fluxional quantity, and finding its maximum. Thus, when the ratio of the power and resistance is given, and we wish to know what must be the proportion of the velocities m and n , that we may construct the machine accordingly, we have only to consider n as the variable quantity in the third formula. This gives us

$$n = m \times \frac{\sqrt{x^2 \times r + f^2} + p^2 \times a + y}{pa + y} - xr + f.$$

68 This is a fundamental proposition in the theory of working machines: but the application requires much attention. Some natural powers are not accompanied by any inertia worth minding; in which case x may be omitted. Some works, in like manner, are not accompanied by any inertia; and this is a very general case. In many cases the work exerts no contrary strain on the machine at rest, and r is nothing. In most instances the intensity of the power varies with the velocity of the impelled point, and is diminished when this increases; the resistance or actual pressure at the working-point frequently increases with the velocity of the working-point. All these circumstances must be attended to; but still they only modify the general proposition. These are matters which do not come within the limits of the present article. We only took this opportunity of showing how imperfect is the theory of machines in equilibrio for giving us any knowledge of their performance or just principles of their construction.

69
Common mode of estimating external impulsions,

One thing, however, must be particularly attended to in this theory. The forces which are applied to the body moveable round an axis are considered in the theory as pressures actually exerted on the impelled points of the body or machine, as when a weight is appended to a lever or wheel and axle, and, by descending uniformly, acts with its whole weight. In this case the weight multiplied by its distance from the axis will always express its momentum, and the rotation will (ca-

teris paribus) be proportional to this product. But in many important cases our machines are actuated by external impulsions. A body in motion strikes on the impelled point of the machine, and causes it to turn round its axis. It is natural for us to consider the quantity of motion of this impelling body as the measure of our moving force. Supposing n to be its quantity of matter, and V its velocity, nV appears a very proper measure of its intensity. And if it be applied at the distance CP from the axis of rotation, $nV \cdot CP$ should express its energy, momentum, or power to turn the machine round C ; and we should express the angular velocity by $\frac{nV \cdot CP}{\int p r^2}$. Accordingly, this is the manner in which calculations are usually made for the construction and performance of the machine, as may be seen in almost every treatise of mechanics.

70 But nothing can be more erroneous, as we shall show by a very simple instance. It should result from these principles that the angular velocity will be proportional to CP . Let us suppose our moving power to be a stream of water moving at the rate of ten feet per second, and that every second there passes 100 pounds of water. We should then call our moving force 1000. It is evident, that if we suppose the arm of the float-board on which it strikes to be infinitely long, the impelled point can never move faster than 10 feet in a second, and this will make the angular velocity infinitely small, instead of being the greatest of all. The rotation will therefore certainly be greater if CP be shorter. We need not examine the case more minutely.

71 We must therefore carefully distinguish between the quantity of motion of the impelling body and its moving power, as it is modified by its manner of acting. The moving power is the pressure actually exerted on the impelled point of the machine. Now the universal fact of the equality of action and reaction in the collision of moving bodies assures us, that their mutual pressure in their collision is measured by the change of motion which each sustains: for this change of motion is the only indication and measure of the pressure which we suppose to be its cause. A way therefore of ascertaining what is the real moving force on a machine actuated by the impulsion of a moving body, is to discover what quantity of motion is lost by the body or gained by the machine; for these are equal. Having discovered this, we may proceed according to the propositions of rotatory motion.

72 Therefore let AEF (fig. 8.) represent a body moveable round an axis passing through C , perpendicular to the plane of the figure. Let this body be struck in the point A by a body moving in the direction FA , and let BAD be a tangent to the two bodies in the point of collision. It is well known that the mutual actions of two solid bodies, are always exerted in a direction perpendicular to the touching surfaces. Therefore the mutual pressure of the two bodies is in the direction AP perpendicular to AD . Therefore let the motion of the impelling body be resolved into the directions AP and AD . The force AD has no share in the pressure. Therefore let V be the velocity of the impelling body estimated in the direction AP , and let n be its quantity of matter. Its quantity of motion in the direction AP will be nV .

Did AP pass through C , it is evident that the only effect

Rotation. effect would be to press the axis on its supports. But AP, the direction of the pressure, being inclined to AC, the point A is forced aside, and in some small moment of time describes the little arch Aa round the centre C. The point P will therefore describe a small arch Pp, subtending an angle PCp = ACa. Draw ao perpendicular to AP, and ad perpendicular to AD. The triangles dAo, ACP are similar, and Aa : Ao = AC : CP. But the angles ACa, PCp being equal, the arches are as their radii, and Aa : Pp = AC : CP, = Aa : Ao; therefore cp = Ao.

Now since, in consequence of the impulse, A describes Aa in the moment of time, it is plain that Ao is the space through which the impelling body continues to advance in the direction of the pressure; and if V be taken equal to the space which it described in an equal moment before the stroke, v will express the remaining velocity, and V-v is the velocity lost, and n(V-v) is the quantity of motion lost by the impelling body, and is the true measure of the pressure exerted. This gives us the whole circumstances of the rotatory motion. The angular velocity will be $\frac{n(V-v) \cdot CP}{\int p r^2}$, and the velocity

of the point A will be $\frac{n(V-v) \cdot CP \cdot CA}{\int p r^2}$. Call this velocity u. The similarity of triangles gives us CA : CP = Aa (or u) : Ao (or v) and $u = \frac{v \cdot CA}{CP}$. There-

fore $\frac{V \cdot CA}{CP} = \frac{n(V-v) \cdot CP \cdot CA}{\int p r^2}$. From this we deduce

$v = \frac{n \cdot V \cdot CP^2}{\int p r^2 + n \cdot CP^2}$ and thus we have obtained the value of v in known quantities; for n was given, or supposed known; so also was V: and since the direction FA was given, its distance CP from the axis is given; and the form of the body being known, we can find the value of $\int p r^2$. Now we have seen that v is also the velocity of the point P; therefore we know the absolute velocity of a given point of the body or machine, and consequently the whole rotatory motion.

We have the angular velocity = $\frac{n \cdot V \cdot CP}{\int p r^2 + n \cdot CP^2}$; we shall find this a maximum when $\int p r^2 = n \cdot CP^2$; and in this case $CP = \sqrt{\frac{\int p r^2}{n}}$, and $v = \frac{1}{2}V$. So that the greatest velocity of rotation will be produced when the striking body loses $\frac{1}{2}$ of its velocity.

What we have now delivered is sufficient for explaining all the motions of bodies turning round fixed axes; and we presume it to be agreeable to our readers, that we have given the investigation of the centres of gyration, oscillation, and percussion. The curious reader will find the application of these theorems to the theory of machines in two very valuable dissertations by Mr Euler in the Memoirs of the Academy of Berlin, vols viii. and x. and occasionally by other authors who have treated mechanics in a scientific and useful manner, going beyond the school-boy elements of equilibrium.

There remains a very important case of the rotation of bodies, without which the knowledge of the motion of solid bodies is incomplete; namely, the rotation of free bodies, that is, of bodies unconnected with any fixed points. We hardly see an instance of motion of a

free body without some rotation. A stone thrown from the hand, a ball from a cannon, the planets themselves, are observed not only to advance, but also to whirl round. The famous problem of the precession of the equinoxes depends for its solution on this doctrine; and the theory of the working of ships has the same foundation. We can only touch on the leading propositions.

We need not begin by demonstrating, that when the direction of the external force passes through the centre of the body, the body will advance without any rotation. This we consider as familiarly known to every person versant in mechanics; nor is it necessary to demonstrate, that when the direction of the moving force does not pass through the centre of gravity, this centre will still advance in a direction parallel to that of the moving force, and with the same velocity as if the direction of the moving force had passed through it. This is the immediate consequence of the equality of action and reaction observed in all the mechanical phenomena of the universe.

But it is incumbent on us to demonstrate, that when the direction of the moving force does not pass thro' the centre of gravity, the body will not only advance in the direction of the moving force, but will also turn round an axis, and we must determine the position of this axis, and the relation subsisting between the progressive and rotatory motions.

The celebrated John Bernoulli was the first who considered this subject; and, in his *Disquisitiones Mechanico-dynamicae*, he has demonstrated several propositions concerning the spontaneous axis of conversion, and the motions arising from eccentric external forces: and although he assumed for the leading principle a proposition which is true only in a great number of cases, he has determined the rotation of spherical bodies with great accuracy.

This combination of motions will be palpable in some simple cases, such as the following: Let two equal bodies A and B (fig. 9.) be connected by an inflexible rod (of which we may neglect the inertia for the present). Let G be the middle point, and therefore the centre of gravity. Let an external force act on the point P in the direction FP perpendicular to AB, and let AP be double of PB. Also let the force be such, that it would have caused the system to have moved from the situation AB to the situation ab, in an indefinitely small moment of time, had it acted immediately on the centre G. G would in this case have described Gg, A would have described Aa, and B would have described Bb, and ab would have been parallel to AB: for the force impressed on A would have been equal to the force impressed on B; but because the force acts on P, the force impressed on A is but one half of that impressed on B by the property of the lever: therefore the initial motion or acceleration of A will be only half of the initial motion of B; yet the centre G must still be at g. We shall therefore ascertain the initial motion of the system, by drawing through g a line agb, so that Aa shall be $\frac{1}{2}$ of Bb. This we shall do by making AC = AB, and drawing Cagb. Then agb will be the position of the system at the end of the moment of time. Thus we see that the body must have a motion of rotation combined with its progressive motion.

Rotation.

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How motion is performed in these cases,

And we deduce immediately from the premises that this rotation is performed round an axis passing through the centre of gravity G : for since the centre describes a straight line, it is never either above or below the axis of rotation, and is therefore always in it. This is a fundamental theorem, and our subsequent investigation is by this means greatly simplified, being thus reduced to two problems: 1. To determine in what direction the axis passes through the centre of gravity. 2. To determine the angular velocity of the rotation, or how far the centre must advance while the body makes one turn round the axis. This establishes the relation between the progressive and rotatory motions. It will contribute to our better conception of both these problems to see the result in the present simple case.

79

It is evident, in the first place, that the impressions made on A and B are in lines Aa , Bb parallel to FP and Gg ; and therefore the motions of the points A , G , and B , are made in one plane, viz. the plane FPG . The axis of rotation therefore must be a line drawn through G , perpendicular to this plane. If we give it any other position, one of the points A , B , or both of them, must quit this plane.

In the next place, in ba produced take $bc = BC$. Then supposing AC to be a rigid line connected with the system, it is evident that if there had been no rotation, the line BC would have kept parallel to its first position, and that at the end of the moment of time C would have been at c . The point C therefore has had, by the rotation, a backward motion cC , relative to the centre G or g , and this motion is equal to the progressive motion Gg of the centre; therefore if we make $G\gamma$ equal to the circumference of a circle, whose radius is CG , the body will make one rotation round the centre of gravity, while this centre moves along $G\gamma$; and thus the relation is established between the two motions.

80

But farther, the point C has, in fact, not moved out of its place. The incipient motion has therefore been such, that C has become a spontaneous centre of conversion. It is easy to see that this must always be the case, whatever may be the form of the rigid body or system of particles connected by inflexible and inextensible lines. Since the system both advances and turns round an axis passing through its centre of gravity, there must be some point in the system, or which may be conceived as connected with it by an inflexible line, which moves backward, by the rotation, as fast as the centre advances forward. A line drawn through this point parallel to the axis must in this instant be at rest, and therefore must be a spontaneous axis of conversion. And, in this instant, the combined motions of rotation round an axis passing through the centre of gravity and the motion of progression, are equivalent to, and actually constitute, an incipient simple motion of rotation round another axis parallel to the former, whose position may be ascertained. But it is necessary to establish this proposition and its converse on clearer evidence.

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Therefore let G (fig. 10.) be the centre of gravity of a rigid system of particles of matter, such as we suppose a solid body to be. Let this system be supposed to turn round the axis Gg , while the axis itself is moving forward in the direction and with the velocity GI . Let the rotation be such, that a particle A has the direction and velocity Ab . Let us first suppose the progressive mo-

tion GI to be perpendicular to the axis Gg . It will therefore be parallel to the planes of the circles described round the axis by the different particles. Let CGg be a plane perpendicular to GI . It will cut the plane of the circle described by A in a straight line cg , and g will be the centre round which A is turning. Therefore Ag will be the radius vector of A , and Ab is perpendicular to Ag . Let Ad be perpendicular to cg , and in Ad take Ae equal to GI or gi . It is evident, that the absolute motion of A is compounded of the motions Ae and Ab , and is the diagonal Af of the parallelogram $Aefb$. In the line gc , which is perpendicular to Gg , take gc to gA , as Ae to Ab , and draw cC parallel to gG , and produce bA till it cut cg in n . We say that Cc is in this moment a spontaneous axis of conversion; for, because An is perpendicular to Ag and Ad to Cg , the angle cga is equal to dAn , or fbA . Therefore, since $cg : gA = fb : bA$, the triangles cga and fbA are similar, and the angle gAc is equal to bAf . Take away the common angle gAf , and the remaining angle cAf is equal to the remaining angle bAg , and Af is perpendicular to Ac , and the incipient motion of A is the same in respect of direction as if it were turning round the axis cC . Moreover, Af is to fb or gi as Ac to cg . Therefore, both the direction and velocity of the absolute motion of A is the same as if the body were turning round the fixed axis cC ; and the combined motion Ae of progression, and the motion Ab of rotation round Gg , are equivalent to, and really constitute, a momentary simple motion of rotation round the axis Cc given in position, that is, determinable by the ratio of Ae to Ab .

82

On the other hand, the converse proposition is, that a simple motion of rotation round a fixed axis Cc , such that the centre G has the velocity and direction GI perpendicular to CG , is equivalent to, and produces a motion of rotation round an axis Gg , along with the progressive motion GI of this axis. This proposition is demonstrated in the very same way, from the consideration that, by the rotation round Cc , we have $cA : cg = Af : gi$. From this we deduce, that Ab is perpendicular to Ag , and that $fb : Ab = cg : gA$; and thus we resolve the motion Af into a motion Ab of rotation round Gg , and a motion Ae of progression common to the whole body.

83

But let us not confine the progressive motion to the direction perpendicular to the axis Gg . Let us suppose that the whole body, while turning round Gg , is carried forward in the direction and with the velocity GK . We can always conceive a plane LGC , which is perpendicular to the plane in which the axis Gg and the direction GK of the progressive motion are situated. And the motion GK may be conceived as compounded of a motion GI perpendicular to this plane and to the axis; and a motion of translation GL , by which the axis slides along in its own direction. It is evident, that in consequence of the first motion GI , there arises a motion of rotation round Cc . It is also evident, that if, while the body is turning for a moment round Cc , this line be slid along itself in the direction cC , a motion equal to GL will be induced on every particle A , and compounded with its motion of rotation Af , and that if $f\gamma$ be drawn equal and parallel to GL , γ will be the situation of the particle A when G is in K .

84

And thus it appears, that when the progressive motion

tion

Rotation.

85
Exempli-
fied.

tion is perpendicular to the axis of rotation passing through the centre of gravity, the two motions progressive and rotatory are equivalent to a momentary simple motion of rotation round a spontaneous axis of conversion, which is at rest: but when the progressive motion is inclined to the axis passing thro' the centre, the spontaneous axis of conversion is sliding in its own direction.

We may conceive the whole of this very distinctly and accurately by attending to the motion of a garden roller. We may suppose it six feet in circumference, and that it is dragged along at the rate of three feet in a second from east to west, the axis of the roller lying north and south. Suppose a chalk line drawn on the surface of the roller parallel to its axis. The roller will turn once round in two seconds, and this line will be in contact with the ground at the intervals of every six feet. In that instant the line on the roller now spoken of is at rest, and the motion is the same as if it were fixed, and the roller really turning round it. In short, it is then a spontaneous axis of conversion.

Now, suppose the roller dragged in the same manner and in the same direction along a sheet of ice, while the ice is floating to the south at the rate of four feet in a second. It is now plain that the roller is turning round an axis through its centre of gravity, while the centre is carried in the direction $36^{\circ} 52' W.$ at the rate of five feet *per* second. It is also plain, that when the line drawn on the surface of the stone is applied to the ice, its only motion is that which the ice itself has to the southward. The motion is now a motion of rotation round this spontaneous axis of conversion, compounded with the motion of four feet *per* second in the direction of this axis. And thus we see that any complication of motion of rotation round an axis passing through the centre of gravity, and a motion of progression of that centre, may always be reduced to a momentary or incipient motion of rotation round another axis parallel to the former, compounded with a motion of that axis in its own direction.

85 The demonstration which we have given of these two propositions points out the method of finding the axis C , the incipient rotation round which is equivalent to the combined progressive motion of the body, and the rotation round the axis Gg . We have only to note the rotatory velocity Ab of some particle A , and its distance Ag from the axis, and the progressive velocity GI of the whole body, and then to make GC a fourth proportional to Ab , GI , and gA , and to place GC in a plane perpendicular to GI , which is perpendicular to Gg , and to place C on that side of Gg which is moving in the opposite direction to the axis.

86 In the simple case of this problem, which we exhibited in order to give us easy and familiar notions of the subject, it appeared that the retrograde velocity of rotation of the point C was equal to the progressive velocity of the centre. This must be the case in every point of the circumference of the circle of which CG , fig. 9. is the radius. Therefore, as the body advances, and turns round G , this circle will apply itself in succession to the line CK parallel to Gg ; and any individual point of it, such as C , will describe a cycloid of which this circle is the generating circle, CK the base, and CG half the altitude. The other points of the body will describe trochoids, elongated or contracted according as the describing points are nearer to or more remote from G than the point C is.

It is now evident that all this must obtain in every case, as well as in this simple one. And when we have ascertained the distance GC between the axis of rotation passing through the centre, and the momentary spontaneous axis of conversion passing through C , we can then ascertain the relation between the motions of rotation and progression. We then know that the body will make one rotation round its central axis, while its centre moves over a space equal to the circumference of a circle of a known diameter.

We must therefore proceed to the methods for determining the position of the point C . This must depend on the proportion between the velocity of the general progressive motion, that is, the velocity of the centre, and the velocity of some point of the body.—This must be ascertained by observation. In most cases which are interesting, we learn the position of the axis, the place of its poles, the comparative progressive velocity of the centre, and the velocity of rotation of the different points, in a variety of ways; and it would not much increase our knowledge to detail the rules which may be followed for this purpose. The circumstance which chiefly interests us at present is to know how these motions may be produced; what force is necessary, and how it must be applied, in order to produce a given motion of rotation and progression; or what will be the motion which a given force, applied in a given manner, will produce.

We have already given the principles on which we may proceed in this investigation. We have shown the circumstances which determine the place of the centre of percussion of a body turning round a given fixed axis. This centre of percussion is the point of the body where all the inherent forces of the whirling body precisely balance each other, or rather where they unite and compose one accumulated progressive force, which may then be opposed by an equal and opposite external force. If, therefore, the body is not whirling, but at rest on this fixed axis, and if this external force be applied at the centre of percussion, now become a point of impulsion, a rotation will commence round the fixed axis precisely equal to what had been stopped by this external force, but in the opposite direction; or, if the external force be applied in the direction in which the centre of percussion of the whirling body was moving at the instant of stoppage, the rotation produced by this impulse will be the same in every respect. And we found that in the instant of application of this external force, either to stop or to begin the motion, no pressure whatever was excited on the supports of the axis, and that the axis was, in this instant, a spontaneous axis of conversion.

Moreover, we have shown, art. 84, that a rotation round any axis, whether fixed or spontaneous, is equivalent to, or compounded of, a rotation round another axis parallel to it, and passing through the centre of gravity, and a progressive motion in the direction of the centre's motion at the instant of impulse.

Now, as the position of the fixed axis, and the known disposition of all the particles of the body with respect to this axis, determines the place of the centre of percussion, and furnishes all the mathematical conditions which must be implemented in its determination, and the direction and magnitude of the force which is produced and exerted at the centre of percussion; so, on the other hand, the knowledge of the magnitude and direction

Rotation.
87
The appli-
cation
made to
more com-
plex cases.

Rotation. direction of an external force which is exerted on the point of impulsion of a body not connected with any fixed axis, and of the disposition of all the parts of this body with respect to this point of impulsion, will furnish us with the mathematical circumstances which determine the position of the spontaneous axis of conversion, and therefore determine the position of the axis through the centre (parallel to the spontaneous axis of conversion), round which the body will whirl, while its centre proceeds in the direction of the external force.

89
Mode of determining the axis of progressive rotation the converse of rection did not pass through their centre of gravity; and that for determining the centre of percussion.

The process, therefore, for determining the axis of progressive rotation is just the converse of the process for determining the centre of percussion.

John Bernoulli was the first who considered the motion of free bodies impelled by forces whose line of direction did not pass through their centre of gravity; and he takes it for granted, that since the body both advances and turns round an axis passing through the centre of gravity, this axis is perpendicular to the plane passing through the direction of the force, and through the point of impulsion and the centre of gravity. Other authors of the first name, such as Huyghens, Leibnitz, Roberval, &c. have thought themselves obliged to demonstrate this. Their demonstration is as follows:

Let a body whose centre of gravity is G (fig. 11.) be impelled at the point P by a force acting in the direction PQ not passing through the centre. The inertia of the whole body will resist in the same manner as if the whole matter were collected in G , and therefore the resistance will be propagated to the point P in the direction GP . The particle P , therefore, is impelled in the direction PQ , and resisted in the direction PA , and must therefore begin to move in some direction PB , which makes the diagonal of a parallelogram of which the sides have the directions PQ and PA . The diagonal and sides of a parallelogram are in one plane. P is therefore moving in the plane $APQB$ or GPO , and it is turning round an axis which passes through G .—Therefore this axis *must* be perpendicular to the plane GPO .

90 It would require a series of difficult propositions to show the fallacy of this reasoning in general terms, and to determine the position of the axis through G . We shall content ourselves with a very simple case, where there can be no hesitation. Let A and B (fig. 12.) be two equal balls connected with the axis ab by inflexible lines Aa , Bb , perpendicular to ab . Let Aa be 1, and Bb 2. The centre of gravity G will evidently be in the line cG parallel to Aa and Bb , and in the middle of ab , and cG is $1\frac{1}{2}$. Let O be the centre of oscillation. cO is $= \frac{A \cdot Aa^2 + B \cdot Bb^2}{A + B \cdot cG} = \frac{1 \cdot 1^2 + 2 \cdot 2^2}{1 + 2 \cdot 1\frac{1}{2}} = \frac{9}{5} = 1\frac{4}{5}$.

Draw Am , Bn perpendicular to cG , and suppose the balls transferred to m and n . Their centre of oscillation will be still at O ; and we see that if the system in this form were stopped at O , all would be in equilibrio. For the force with which the ball A arrives (by swinging round the axis) at m , is as its quantity of matter and velocity jointly, that is, $A \cdot Aa$, or 1. That of B arriving at n is $B \cdot Bb$, or 2. The arm mO of the lever turning round O is $\frac{3}{5}$, and the arm nO is $\frac{1}{5}$. The forces, therefore, are reciprocally as the arms of the lever on which they act, and their momenta, or powers to turn the line mn round O , are equal and opposite, and therefore balance each other; and therefore, at the

instant of stopping, no pressure is exerted at c . Therefore, if any impulse is made at O , the balls at m and n will be put in motion with velocities 1 and 2; and c will be a spontaneous centre of conversion. Let us see whether this will be the case when the balls are in their natural places A and B , or whether there will be any tendency to a rotation round the axis cO . The momentum of A , by which it tends to produce a rotation round cO is $A \cdot Aa \cdot Am = 1 \times 1 \cdot \frac{3}{5}$. That of B is $B \cdot Bb \cdot Bn = 2 \times 2 \cdot \frac{1}{5}$. Am and Bn are equal, and therefore the momentum of B is double that of A , and there is a tendency of the system to turn round cO ; and if, at the instant of stoppage, the supports of the axis ab were removed, this rotation round cO would take place, and the point b would advance, and a would recede, c only remaining at rest. Therefore, if an impulse were made at O , ab would not become a spontaneous momentary axis of conversion, and O is not the centre of percussion. This centre must be somewhere in the line OP parallel to ab , as at P , and so situated that the momenta $A \cdot Aa \cdot Aa$ and $B \cdot Bb \cdot Bb$ may be equal, or that Aa may be double of Bb , or ap double of bp . If an impulse be now made at P , the balls AB will be urged by forces as 1 and 2, and therefore will move as if round the axis ab , and there will be no pressures produced at a and b , and ab will really become a momentary spontaneous axis of conversion.

Now join G and P . Here then it is evident, that a body or system A, B , receiving an impulse at P perpendicular to the plane $a c G$, acquires to itself a spontaneous axis of conversion which is not perpendicular to the line joining the point of impression and the centre of gravity. And we have shown, in art. 84. that this motion round ab is compounded of a progressive motion of the whole body in the direction of the centre, and a rotation round an axis passing through the centre parallel to ab . Therefore, in this system of free bodies, the axis of rotation is not perpendicular to the plane passing through the centre of gravity in the direction of the impelling force.

As we have already observed, it would be a laborious task to ascertain in general terms the position of the progressive axis of rotation. Although the process is the inverse of that for determining the centre of percussion when the axis of rotation is given, it is a most intricate business to convert the steps of this process. The general method is this: The momentum of a particle A (fig. 5.) by which it tends to change the position of the axis Dd , has for its factors $A \cdot Aa$, and Aa , which are its distances from three planes $Dd \delta \delta$, $DCO n$, and $Cg \gamma \gamma$, given in position. The sum of all these must be equal to nothing, by the compensation of positive and negative quantities. We must find three other planes (of which only one is in some measure determined in position, being perpendicular to $DCO n$), so situated that the sums of similar products of the distances of the particles from them may in like manner be equal to nothing. This is a very intricate problem; so intricate, that mathematicians have long doubted and disputed about the certainty of the solutions. Euler, d'Alembert, Frisi, Landen, and others, have at last proved, that every body, however irregular its shape, has at least three axes passing through its centre of gravity, round which it will continue to revolve

Rotation.

91
Difficulty of ascertaining its position in general terms.

Rotation.

volve while proceeding forward, and that these are at right angles to each other; and they have given the conditions which must be implemented in the determination of these axes. But they still leave us exceedingly at a loss for means to discover the positions of the axes of a given body which have these conditions.

To solve this problem therefore in general terms, would lead to a disquisition altogether disproportioned to our work. We must restrict ourselves to those forms of body and situations of the point of impulsion which admit of the coincidence of the centres of oscillation and percussion; and we must leave out the cases where the axis has a motion in the direction of its length; that is, we shall always suppose the spontaneous axis of conversion to have no motion. Thus we shall comprehend the phenomena of the planetary motions, similar to the precession of our equinoctial points, and all the interesting cases of practical mechanics. The speculative mathematical reader will fill up the blanks of this investigation by consulting the writings of Euler and D'Alembert in the Berlin Memoirs, Frisi's Cosmographia, and the papers of Mr Landen, Mr Milner, and Mr Vince, in the Philosophical Transactions. But we hope, by means of a beautiful proposition on the composition of rotatory motions, to enable every reader to discover the position of the axis of progressive rotation in every case which may interest him, without the previous solution of the intricate problem mentioned above.

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Mode of
ascertaining
it in most
interesting
cases.

Let $ABPCbA$ (fig. 13.) be a section of a body through its centre of gravity G , so formed, that the part $ABPC$ is similar, and similarly placed with the part $A b p C$, so that the plane AC would divide it equally. Let this body be impelled at P in the direction HP , perpendicular to the plane AC . The axis round which it will turn will be perpendicular to $G\pi$. Suppose it at A . Then drawing AB and $A b$ to similar points, it is plain that $B\beta$, $b\beta$ are equal and opposite; these represent the forces which would raise or lower one end of the axis, as has been already observed. The axis therefore will remain perpendicular to $G\pi$.

93 Let the body be so shaped, that if the parts to the right and left of the point of impulse π (the impulse is here supposed: not perpendicular to the plane AC , but in this plane) are equal and similarly placed; then the momenta round AC must balance each other, and the axis EF will have no tendency to go out of the plane $ABCbA$ perpendicular to the impulse.

Any body whose shape has these two properties will turn round an axis perpendicular to the plane which passes through the centre of gravity in the direction of the impelling force. This condition is always found in the planets when disturbed by the gravitation to a distant planet: for they are all figures of revolution. The direction of the disturbing or impelling force is always in a plane passing through the axis and the disturbing body.

With such limitations therefore we propose the following problem:

94 Let G (fig. 14.) be the centre of gravity of a body in free space, which is impelled by an external force f , acting in the line FP , which does not pass through the centre. Let m be the number of equal particles in the body, or its quantity of matter. Let the force f be

such, that it would communicate to the body the velocity v ; that is, would cause the centre to move with the velocity v . It may be expressed by the quantity of motion which it produces, that is, by mv , and it would produce the velocity mv on one particle. It is required to determine the whole motion, progressive and rotatory, which it will produce, and the space which it will describe during one turn round its axis.

Draw GI parallel and PGC perpendicular to FP , and let GI be taken for the measure of the progressive velocity v .

It has been demonstrated that the centre G will proceed in the direction GI with the velocity v , and that the body will at the same time turn round an axis passing through G , perpendicular to the plane of the figure, every particle describing circles in parallel planes round this axis, and with velocities of rotation proportional to their distances from it. There is therefore a certain distance GB , such that the velocity with which a particle describes its circumference is equal to the progressive velocity v . Let BCD be this circumference. When the particle describing this circumference is in the line CGP , and in that part of it which lies beyond P from G , its absolute velocity must be double that of the centre G ; but when it is in the opposite point C , its retrograde velocity being equal to the progressive velocity of the centre, it must be at rest. In every position of the body, therefore, that point of the accompanying circumference which is at this extremity of the perpendicular drawn through the centre on the line of direction of the impelling force is at rest. It is at that instant a spontaneous centre of conversion, and the straight line drawn through it perpendicular to the plane of the figure is then a spontaneous axis of conversion, and every particle is in a momentary state of rotation round this axis, in directions perpendicular to the lines drawn to the axis at right angles, and with velocities proportional to these distances; and lastly, the body advances in the direction GI through a space equal to the circumference BCD , while it makes one turn round G .

Let A be one of the particles in the plane of the figure. Join AC , AG , AP . Draw $A b$, $A c$, $A d$ perpendicular to CP , CA , GA . The absolute motion $A c$ of A is compounded of the progressive motion $A b$ common to the whole body and equal to GI , and the motion $A d$ of rotation round the centre of gravity G . Therefore since $A b$ is equal to v , and $A c$ is the diagonal of a parallelogram given both in species and magnitude, it is also given, and (as appears also from the reasoning in art. 85.) it is to GI as CA to CG .

By the application of the force mv in the direction FP , every particle of the body is dragged out of its place, and exerts a resistance equal to the motion which it acquires. A part of this force, which we may call mv , is employed in communicating the motion $A c$ to A . Therefore mv , which we have, and, from what has been lately shown, $CG:CA = GI:A c, = v:A c$,

and therefore $A c = \frac{v \cdot CA}{CG}$. But farther (agreeably to what was demonstrated in art. 16.) we have $CP:CA$

$= A c : mv, = \frac{v \cdot CA}{CG} : mv$, and therefore $mv = \frac{v \cdot CA^2}{CG}$

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Rotation. $\frac{v.CA^2}{CG.CP}$. Therefore the whole force employed in communicating to each particle the motion it really acquires, or $m v$, is equal to the fluent of the quantity $\frac{v.CA^2}{CP.CG}$ or $m v = \frac{v.fCA^2}{CP.CG}$, and $m.CP.CG = fCA^2$, which by art. 23. is equal to $fGA^2 + m.CG^2$. Therefore we have $m.CP.CG - m.CG.CG = fGA^2$, or $m.GP.CG = fGA^2$, and finally, $CG = \frac{fGA^2}{m.GP}$.

Now the form of the body gives us fGA^2 , and the position of the impelling force gives us $m.GP$. Therefore we can compute the value of CG ; and if r be the periphery of a circle whose radius is unity, we have $\pi.CG$ equal to the space which the body must describe in the direction GI , while it makes one rotation round its axis.

97 Cor. 1. The angular velocity, that is, the number of turns or the number of degrees which one of the radii will make in a given time, is proportional to the impelling force: for the length of CG depends only on the form of the body and the situation of the point of impulsion; while the time of describing π times this length is inverfely as the force.

98 2. The angular velocity with any given force is as GP : for CG , and consequently the circumference $\pi.CG$, described during one turn, is inverfely as GP .

99 3. PC is equal to $\frac{fPA^2}{m.GP}$: for we have $fPA^2 = fGA^2 + m.GP^2$. Therefore $\frac{fPA^2}{m.GP} = \frac{fGA^2}{m.GP} + \frac{m.GP^2}{m.GP} = CG + GP = CP$.

100 4. If the point C is the centre of impulsion of the same body, P will be a spontaneous centre of conversion (see art. 41).

101 5. A force equal and oppofite to $m v$, or to f , applied at G , will ftop the progrefive motion, but will make no change in the rotation; but if it be applied at P , it will ftop all motion both progrefive and rotatory. If applied between P and G , it will ftop the progrefive motion, but will leave fome motion of rotation. If applied beyond P it will leave a rotation in the oppofite direction. If applied beyond G , or between G and C , it will increafe the rotation: All this will be eafily conceived by reflecting on its effect on the body at ref.

102 6. A whirling body which has no progrefive motion cannot have been brought into this ftate by the action of a fingle force. It may have been put into this condition by the fimultaneous operation of two equal and oppofite forces. The equality and oppofition of the forces is neceffary for ftopping all progrefive motion. If one of them has acted at the centre, the rotatory motion has been the effect of the other only. If they have acted on oppofite fides, they confpired with each other in producing the rotation; but have oppofed each other if they acted on oppofite fides.

In like manner, it is plain that a motion of rotation, together with a progrefive motion of the centre in the direction of the axis, could not have been produced by the action of a fingle force.

7. When the fpace S which a body describes during one rotation has been obferved, we can difcover the point of impulfe by which a fingle force may have acted in producing both the motions of progrefion and rotation: for $CG = \frac{S}{\pi}$, and $GP = \frac{fGA^2}{m.CG} = \frac{\pi fGA^2}{m.S}$.

103 In this manner we can tell the diftances from the centre at which the fun and planets may have received the fingle impulfe which gave them both their motions of revolution in their orbits and rotation round their axes. Application of this doctrine to the heavenly motions.

It was found (art. 40. f) that the diftance OG of the centre of ofcillation or percuffion of a fphere fwinging round the fixed point C from its centre G , is $\frac{2}{3}$ of the third proportional to CG , and the radius of the fphere, or that $OG = \frac{2}{3} \frac{RG^2}{CG}$. Suppofing the

planets to be homogeneous and fpherical, and calling the radius of the planet r , and the radius of its orbit R , the time of a rotation round its axis t , and the time of a revolution in its orbit T , and making $1 : \pi$ the ratio of radius to the periphery of a circle, we fhall have πR for the circumference of the orbit, and $\pi R \frac{t}{T}$ for

the arch of this circumference described during one rotation round the axis. This is S in the above-mentioned formula. Then, diminifhing this in the ratio of the circumference to radius, we obtain $CG = R \frac{t}{T}$,

and $OG = \frac{2}{3} \frac{r^2}{CG} = \frac{2}{3} \frac{T r^2}{t R}$. This is equivalent to $\frac{\pi fGA^2}{m.S}$, and eafier obtained.

This gives us $G v$

For the Earth	$= \frac{r}{157}$	} nearly.
Moon	$\frac{r}{555}$	
Mars	$\frac{r}{195}$	
Jupiter	$\frac{r}{2,8125}$	
Saturn	$\frac{r}{2,588}$	
	$\frac{r}{2,588}$	

We have not data for determining this for the fun. But the very circumftance of his having a rotation in $27^d 7^h 47'$ makes it very probable that he, with all his attending planets, is alfo moving forward in the celeftial fpaces, perhaps round fome centre of ftill more general and extenfive gravitation: for the perfect oppofition and equality of two forces, neceffary for giving a rotation without a progrefive motion, has the odds againft it of infinity to unity. This corroborates the conjectures of philofophers, and the obfervations of Herfchel and other aftronomers, who think that the folar fyftem is approaching to that quarter of the heavens in which the conftellation Aquila is fituated.

8. As in the communication of progrefive motion among bodies, the fame quantity of motion is preferved before and after collifion, fo in the communication of rotation

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tation among whirling bodies the quantity of rotatory momentum is preserved. This appears from the general tenor of our formulæ: for if we suppose a body turning round an axis passing through its centre, without any progressive motion, we must suppose that the force $m v$, which put it in motion, has been opposed by an equal and opposite force. Let this be supposed to have acted on the centre. Then the whole rotation has been the effect of the other acting at some distance GP from the centre. Its momentum is $m v.GP$. Had it acted alone, it would have produced a rotation compounded with a progressive motion of the centre with the velocity v ; and the body acquires a momentary spontaneous axis of conversion at the distance GC from the centre of gravity. The absolute velocity AC of

any particle is $\frac{v.AC}{CG}$; its momentum is $\frac{v.AC^2}{CG}$, and the sum of all the momenta is $\frac{v.AC^2}{CG}$, or $\frac{v f AC^2}{CG}$, and this is equal to $m v.GP$. But when the progressive motion is stopped, $A b$, which was a constituent of the absolute motion of A , is annihilated, and nothing remains but the motion $A d$ of rotation round G . But the triangles $d A c$ and $G A C$ were demonstrated (nº 81.) to be similar; and therefore $AC:Ad = CA:GA$. Therefore the absolute velocity of the particle, while turning round the quiescent centre of gravity G , is $\frac{v.GA}{GC}$; its momentum is $\frac{v.GA^2}{GC}$; the

sum of all the momenta is $\frac{v f GA^2}{GC}$; and this is still equal to $m v$. Observe, that now GC is not the distance of the centre of conversion from the centre of gravity, because there is now no such thing as the spontaneous axis of conversion, or rather it coincides with the axis of rotation. GC is the distance from the centre of a particle whose velocity of rotation is equal to v .

Now let the body be changed, either by a new distribution of its parts, or by an addition or abstraction of matter, or by both; and let the same force $m v$ act at the same distance GP from the centre. We shall still have $m v.GP = \frac{v f GA^2}{GC}$; and therefore the sum of the momenta of the particles of the whirling body is still the same, viz. equal to the momentum of the force $m v$ acting by the lever GP. If therefore a free body has been turning round its centre of gravity, and has the distribution of its parts suddenly changed (the centre however remaining in the same place), or has a quantity of matter suddenly added or taken away, it will turn with such an angular velocity that the sum of the momenta is the same as before.

107. Application to the problem of the precession of the equinoxes. We have been so particular on this subject, because it affects the celebrated problem of the precession of the equinoxes; and Sir Isaac Newton's solution of it is erroneous on account of his mistake in this particular. He computes the velocity with which a quantity of matter equal to the excess of the terrestrial spheroid over the inscribed sphere would perform its librations, if detached from the spherical nucleus. He then supposes it suddenly to adhere to the sphere, and to drag it into the same libratory motion; and he computes the

libration of the whole mass, upon the supposition that the quantity of motion in the libratory spheroid is the same with the previous quantity of motion of the librating redundant ring or shell; whereas he should have computed it on the supposition that it was the quantity of momenta that remained unchanged.

The same thing obtains in rotations round fixed axes, as appears by the perfect sameness of the formulæ for both classes of motions.

This law, which, in imitation of the Leibnitzians, we might call the *conservatio momentorum*, makes it of importance to have expressions of the value of the accumulated momenta in such cases as most frequently occur. The most frequent is that of a sphere or spheroid in rotation round an axis or an equatorial diameter; and a knowledge of it is necessary for the solution of the problem of the precession of the equinoxes. See PRECESSION, nº 33.

Let $AP a p$ (fig. 15.) be a sphere turning round the diameter $P p$, and let $DD', d d'$ be two circles parallel to the equator $A a$, very near each other, comprehending between them an elementary slice of the sphere. Let $CA = a$, $CB = x$, and $BD = y$, and let π be the circumference of a circle whose radius is 1. Lastly, let the velocity of the point A be v . Then

$\frac{v y}{a}$ is the velocity at the distance y from the axis, πy is the quantity of matter in the circumference whose radius is y ; for it is the length of that circumference when expanded.

$\frac{v \pi y^2}{a}$, or $\frac{v y}{a} \times \pi y$, is the quantity of motion in this circumference turning round the axis $P p$.

$\frac{v \pi y^3}{a}$ is the momentum of the same circumference.

$\frac{v \pi y^3}{a}$ is the fluxion of the momentum of the circle whose radius is y , turning in its own plane round the axis.

$\frac{v \pi y^4}{4 a}$ is the fluent, or the momentum of the whole circle; and therefore it is the momentum of the circle DD' .

$\frac{v \pi y^4}{4 a}$ is the fluxion of the momentum of the hemisphere; for $B b = x$, and this fraction is the momentum of the slice $d DD' d$.

$y^2 = a^2 - x^2$, and $y^4 = a^4 - 2 a^2 x^2 + x^4$. Therefore $\frac{v \pi}{2 a} \times (a^4 x - 2 a^2 x^3 + x^5)$ is the fluxion of the momentum of the whole sphere. Of this the fluent for the segments whose heights are CB , or x , is $\frac{v \pi}{2 a}$

$$(a^4 x - \frac{2 a^2 x^3}{3} + \frac{x^5}{5}).$$

Let x become a , and we have for the momentum of the whole sphere $\frac{v \pi}{2 a} (a^5 - \frac{2}{3} a^5 + \frac{1}{5} a^5) = v \pi (\frac{a^4}{2} - \frac{a^4}{3} + \frac{a^4}{10}) = v \pi \frac{1}{15} a^4$.

Let us suppose that this rotation has been produced by the action of a force $m u$; that is, a force which would communicate the velocity u to the whole matter

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Rotation. of the sphere, had it acted in a direction passing through its centre; and let us suppose that this force acted on the equatorial point A at right angles to AC: Its momentum is $mu a$, and this is equal to $v \pi \frac{4}{3} a^3$. Also, we know that $m = \frac{2}{3} \pi a^3$. Therefore we have $u \cdot \frac{2}{3} \pi a^3 = v \pi \frac{4}{3} a^3$, $\frac{2}{3} u = \frac{4}{3} v$, and $v = \frac{1}{2} u$.

110 Let EPQ p be an oblate spheroid whose semi-axis PC is a , and equatorial radius EC is b , and let v be the velocity on the equator of the inscribed sphere. Then since the momentum of the whirling circle DD is $\frac{v \pi y^4}{4 a}$, the momenta of the sphere and spheroid are in the quadruplicate ratio of their equatorial radii; and therefore that of the whole spheroid is $\frac{4}{3} \pi b^4 v$. And if w be the velocity at E corresponding to the velocity v at A, so that $w = \frac{b}{a} v$, we have the momentum of the spheroid, expressed in terms of the equatorial velocity at the surface, $\frac{4}{3} \pi b^3 a w$.

111 If the same force mu be made to act in the same manner at E, its momentum $mu b$ is $= \frac{4}{3} \pi b^3 a w$, and $w = \frac{15 mu}{4 \pi b^3 a}$. Therefore the angular velocities $\frac{v}{a}$, $\frac{w}{b}$, which the same force mu acting at A or E will produce in the sphere and the spheroid, are as $\frac{15 mu}{4 \pi a^4}$ and $\frac{15 mu}{4 \pi b^4 a}$, that is, in the triplicate ratio of the equatorial diameter b to the polar axis a .

112 Lastly, if the oblate spheroid is made to turn round an equatorial diameter passing through C perpendicular to the plane of the figure, it is plain that every section parallel to the meridian EPQ p is an ellipse similar to this meridian. If this ellipse differs very little from the inscribed circle, as is the case of the earth in the problem of the precession of the equinoxes, the momentum of each ellipse may be considered as equal to that of a circle of the same area, or whose diameter is a mean proportional between the equatorial and polar diameters of the spheroid. This radius is to the radius of the circumscribed circle as \sqrt{ba} to b . Therefore the momenta of the section of the spheroid and of the circumscribed sphere are in the constant ratio of $b^2 a^2$ to b^4 , or of a^2 to b^2 . And if the velocity in the equator of this circumscribed sphere be called w , the momentum of the sphere is $\frac{4}{3} \pi b^4 w$; and therefore that of the spheroid is $\frac{4}{3} \pi b^2 a^2 w$, agreeably to what was assumed in the article PRECESSION, n° 33.

This value of the momentum of a spheroid round an equatorial diameter is only a very easy approximation; an exact value may be obtained by an infinite series. The whole matter of the spheroid may be considered as uniformly distributed on the surface of a similar spheroid whose diameter is $= \sqrt{\frac{1}{2}}$ of the diameter of the spheroid. It will have the same momentum, because a triangle in one of the ellipses, having an elementary arch of the circumference for its base, and the centre of the ellipse for its vertex, has its centre of gyration distant from the vertex $\sqrt{\frac{1}{2}}$ the length of the radius of the ellipse, and the problem is reduced to the finding the sum of these lines. But even when the series for this sum involves the 3d power of the eccentricity, it is not more exact than the above approximation.

A similar proposition may be obtained for a prolate spheroid vibrating round an equatorial diameter, and

applied to the conjectural shape of the moon, for explaining her oscillations.

The reader must have observed that the preceding disquisitions refer to those motions only which result from the action of external forces and to the state of incipient motion. All circular motions, such as those of rotation, are accompanied by centrifugal forces. A central force is necessary for retaining every particle in its circular path; such forces must therefore be excited in the body, and can arise only from the forces of cohesion by which its particles are held together. These forces are mutual, equal, and opposite; and as much as a particle A (fig. 5.) is retained by a force in the direction Aa of the line which connects it with the fixed axis Dd, or in the direction AG (fig. 10.), which connects it with the progressive axis; so much must the point a of the axis Dd be urged in the opposite direction aA, or so much must the whole body be urged in the direction GA. Every point therefore of the axis Dd, or of the axis through G in fig. 10. is carried in a variety of directions perpendicular to itself. These forces may or may not balance each other. If this balance obtains with respect to the fixed axis, its supports will sustain no pressure but what arises from the external force; if not, one support will be more pressed than the other; and if both were removed, the axis would change its position. The same must be affirmed of the axis through G in fig. 10. This, having no support, must change its position.

And thus it may happen, that the axis of rotation passing through G which has been determined by the preceding disquisitions, is not permanent either in respect of the body, or in respect of absolute space. These two rotations are essentially different. The way to conceive both is this. Suppose a spherical surface described round the body, having its centre in the centre of gravity; and suppose this surface to revolve and to proceed forward along with the body: in short, let it be conceived as an immaterial surface attached to the body. The axis of rotation will pass through this surface in two points which we shall call its poles. Now, we say that the axis is permanent with respect to the body when it has always the same poles in this spherical surface. Suppose another spherical surface described round the same centre, and that this surface also accompanies the body in all its progressive motion, but does not turn with it. The axis is permanent with respect to absolute space when it has always the same poles in this surface: it is evident that these two facts are not inseparable. A boy's top spins on the same point and the same corporeal axis, while, towards the end of its motion, we observe it directing this round and round to different quarters of the room. And when we make an egg or a lemon spin with great rapidity on its side on a level table, we see it gradually rise up, till it stand quite on end, spinning all the while round an axis pointing to the zenith.

This change in the position of the axis is produced by the unbalanced actions of the centrifugal forces exerted by the particles. Suppose two equal balls A and B (fig. 16.) connected by an inflexible rod whose middle point is G, the centre of gravity of the balls. This system may be made to turn round the material axis Dd, A describing the circle AEFA, and B describing the circle BHKB. The rod AB may also be conceived

as moveable round the point G by means of a pin at right angles to the axis. Suppose the balls passing through the situations A and B ; their centrifugal forces urge them at the same time in the directions CA and OB , which impussions conspire to make the connecting rod recede from both ends of the axis Dd . And thus the balls, instead of describing parallel circles round this axis, will describe parallel spirals, gradually opening the angles DGA , dGB more and more, till the balls acquire the position $\alpha\beta$ at right angles to the axis. They will not stop there, for each came into that position with an oblique motion. They will pass it; and were it not for the resistance of the air and the friction of the joint at G , they would go on till the ball A came to describe the circle BHK , and the ball B to describe the circle AEF . The centrifugal forces will now have exhausted by opposition all the motions which they had acquired during their passage from the position AB to the position $\alpha\beta$; and now they will again describe spirals gradually opening, and then contracting, till the balls arrive at their original position AB , when the process will begin again. Thus they will continue a kind of oscillating rotation.

Thus the axis is continually changing with respect to the system of balls; but it is fixed in respect to absolute space, because the axis Dd is supported. It does not yet appear that it has any tendency to change its position, because the centrifugal tendency of the balls is completely yielded to by the joint at G . The material axis has indeed sustained no change; but the real axis, or mathematical line round which the rotation was going on every moment, has been continually shifting its place. This is not so obvious, and requires a more attentive consideration. To show accurately the gradual change of position of the real axis of rotation would require a long discussion. We shall content ourselves with exhibiting a case where the position of the momentary axis is unquestionably different from Dd , which we may suppose horizontal.

Take the balls in the position $\alpha\beta$. They came into this position with a spiral motion; and therefore each of them was moving obliquely to the tangents $\alpha\phi$, $\beta\gamma$ to the circle $\alpha\delta\beta\epsilon$; suppose in the directions $\alpha\theta$, $\beta\lambda$. They are therefore moving round the centre G in a plane $\theta\alpha\beta\lambda$, inclined to the plane $\phi\alpha\beta\gamma$ of the circle $\alpha\delta\beta\epsilon$. The momentary axis of rotation is therefore perpendicular to this oblique plane, and therefore does not coincide with Dd .

We cannot enter upon the investigation of this evagation of the axis, although the subject is both curious and important to the speculative mathematicians. A knowledge of it is absolutely necessary to a complete solution of the great problem of the precession. But when treating that article, we contented ourselves with showing that the evagation which obtains in this natural phenomenon is so exceedingly minute, that although multiplied many thousands of times, it would escape the nicest observations of modern astronomers; and that it is a thing which does not accumulate beyond a certain limit, much too small for observation; and then diminishes again, and is periodical. Euler, D'Alembert, Frisi, and De la Grange, have shown the momentary position of the real variable axis corresponding to any given time; and Landen has with great ingenuity and elegance connected these momentary posi-

tions, and given the whole paths of evagation. Mr Segnor was, we believe, the first who showed (in a Dissertation *De Motu Turbinum*, Halle, 1755), that in every body there were at least three lines passing through the centre of gravity at right angles to each other, forming the solid angle of a cube, round which the centrifugal forces were accurately balanced, and therefore a rotation begun round either of these three lines would be continued, and they are permanent axes of rotation. Albert Euler gave the first demonstration in 1760, and since that time the investigation of these axes has been extended and improved by the different authors already named. It is an exceedingly difficult subject; and we recommend the synthetical investigation by Frisi in his *Cosmographia* as the fittest for instructing a curious reader to whom the subject is new. We shall conclude this dissertation with a beautiful theorem, the enunciation of which we owe to P. Frisi, which has amazingly improved the whole theory, and gives easy and elegant solutions of the most difficult problems. It is analogous to the great theorem of the composition of motions and forces.

If a body turns round an axis AGa (fig. 17.) passing through its centre of gravity G with the angular velocity a , while this axis is carried round another axis BGb with the angular velocity b , and if GD be taken to GK as a to b (the points B and E being taken on that side of the centre where they are moving towards the same side of the plane of the figure), and the line DE be drawn, though the whole and every particle of the body will be in a state of rotation round a third axis CGc , lying in the plane of the other two, and parallel to DE , and the angular velocity c round this axis will be to a and to b as DE is to GD and to GE .

For, let P be any particle of the body, and suppose a spherical surface to be described round G passing through P . Draw PR perpendicular to the plane of the figure. It is evident that PR is the common section of the circle of rotation IPi round the axis Aa , and the circle KPi of rotation round the axis Bb . Let Ii , Kk be the diameters of these circles of rotation, F and G their centres. Draw the radii PF and PO , and the tangents PM and PN . These tangents are in a plane MPN which touches the sphere in P , and cuts the plane of the axis in a line MN , to which a line drawn from the centre G of the sphere through the point R is perpendicular. Let PN represent the velocity of rotation of the point P round the axis Bb , and Pf its velocity of rotation round Aa . Complete the parallelogram $PNtf$. Then Pt is the direction and velocity of motion resulting from the composition of PN and Pf . Pt is in the plane MPN , because the diagonal of a parallelogram is in the plane of its sides PN and Pf .

Let perpendiculars fF , tT , be drawn to the plane of the axes, and the parallelogram $PNtf$ will be orthographically projected on that plane, its projection being a parallelogram $RNTF$. (F here falls on the centre by accident.) Draw the diagonal RT . It is evident that the plane $PRtT$ is perpendicular to the plane of the two axes, because PR is so. Therefore the compound motion Pt is in the plane of a circle of revolution round some axis situated in the plane of the other two. Therefore produce TR , and draw GC cutting it at right angles

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angles in H , and let LP be the circle, and PH a radius. P is therefore a tangent, and perpendicular to PH , and will meet RT in some point Q of the line MN . The particle P is in a state of rotation round the axis CG , and its velocity is to the velocities round Aa or Bb as P to Pf or PN . The triangles PRN and OPN are similar. For PN the tangent is perpendicular to the radius OP , and PR is perpendicular to ON . There-

fore $OP : PN = PR : RN$, and $RN = \frac{PR \cdot PN}{OP}$. But

the velocity of P round the axis Bb is $OP \cdot b$. There-

fore $RN = \frac{PR \cdot OP \cdot b}{OP} = PR \cdot b$. In like manner RF

$= PR \cdot a$. Therefore $RF : RN = a : b = GD : GE$.

But $NT : RN = \text{fine } NRT : \text{fine } NTR$, and $GD : GE$

$= \text{fine } GED : \text{fine } GDE$. Therefore $\text{fine } NRT :$

$\text{fine } NTR = \text{fine } GED : \text{fine } GDE$. But $RNT =$

EGD , for NR is perpendicular to EG and NT (be-

ing parallel to IF) is perpendicular to DG . There-

fore TR is perpendicular to ED , and Cc is parallel to

ED , and the rotation of the particle P is round an

axis parallel to ED .

And since RN, RF, RT , are as the velocities b, a, c , round these different axes, and are proportional to EG, DG, DE , we have c to a or to b as ED to GD or GE , and the proposition is demonstrated.

This theorem may be thus expressed in general terms.

119
Expressed
in general
terms.

If a body revolves round an axis passing through its centre of gravity with the angular velocity a , while this axis is carried round another axis, also passing through its centre of gravity, with the angular velocity b , these two motions compose a motion of every particle of the body round a third axis, lying in the plane of the other two, and inclined to each of the former axes in angles whose sines are inversely as the angular velocities round them; and the angular velocity round this new axis is to that round one of the primitive axes as the sine of inclination of the two primitive axes is to the sine of the inclination of the new axis to the other primitive axis.

When we say that we owe the enunciation of this theorem to P. Frisi, we grant at the same time that something like it has been supposed or assumed by other authors: Newton seems to have considered it as true, and even evident, in homogeneous spheres; and this has been tacitly acquiesced in by the authors who followed him in the problem of the precession. Inferior writers have carelessly assumed it as a truth. Thus Nollet, Gravesande, and others, in their contrivances for exhibiting experiments for illustrating the composition of vortices, proceeded on this assumption. Even authors of more scrupulous research have satisfied themselves with a very imperfect proof. Thus Mr Landen, in his excellent dissertation on rotatory motion, *Philosophical Transactions*, Vol. LXVII. contents himself with showing, that, by the equality and opposite directions of the motions round the axes Aa and Bb , the point C will be at rest, and from thence concludes that CG will be the new axis of rotation. But this is exceedingly hasty (note also, that this dissertation was many years posterior to that of P. Frisi): For although the separate motions of the point C may be equal and opposite, it is by no means either a mathematical or a mechanical consequence that the body will turn round the axis Cc .

In order that the point C may remain at rest, it is necessary that all tendencies to motion be annihilated: this is not even thought of in making the assumption. Frisi has shown, that in the motion of every particle round the axis Cc , there is involved a motion round the two axes Aa and Bb , with the velocities a and b ; and it is a consequence of this, and of this only, that the impulses which would separately produce the rotations of every particle round Aa and Bb will, either in succession or in conjunction, produce a rotation round Cc . Moreover, Mr Landen's not having attended to this, has led him, as we imagine, into a mistake respecting the velocity with which the axis changes its position; and though his process exhibits the path of evagation with accuracy, we apprehend that it does not assign the true times of the axes arriving at particular points of this path.

It follows from this proposition, that if every particle of a body, whether solid or fluid, receives in one instant a separate impulse, competent to the production of a motion of the particle round an axis with a certain angular velocity, and another impulse competent to the production of a motion round another axis with a certain velocity, the combined effect of all these impulses will be a motion of the whole system round a third axis given in position, with an angular velocity which is also given: and this motion will obtain without any separation or disunion of parts; for we see that a motion round two axes constitute a motion round a third axis in every particle, and no separation would take place although the system were incoherent like a mass of sand, except by the action of the centrifugal forces arising from rotation. Mr Simpson therefore erred in his solution of the problem of the precession, by supposing another force necessary for enabling the particles of the fluid spheroid to accompany the equator when displaced from its former situation. The very force which makes the displacement produces the accompaniment, as far as it obtains, which we shall see presently is not to the extent that Mr Simpson and other authors who treat this problem have supposed.

For the same reason, if a body be turning round any axis, and every particle in one instant get an impulse precisely such as is competent to produce a given angular velocity round another axis, the body will turn round a third axis given in position, with a given angular velocity: for it is indifferent (as it is in the ordinary composition of motion) whether the forces act on a particle at once or in succession. The final motion is the same both in respect of direction and velocity.

Lastly, when a rigid body acquires a rotation round an axis by the action of an impulse on one part of it, and at the same time, or afterwards, gets an impulse on any part which, alone, would have produced a certain rotation round another axis, the effect of the combined actions will be a rotation round a third axis, in terms of this proposition; for when a rigid body acquires a motion round an axis, not by the simultaneous impulse of the precisely competent force on each particle, but by an impulse on one part, *there has been propagated to every particle* (by means of the connecting forces) an impulse precisely competent to produce the motion which the particle really acquires; and when a rigid body, al-

ready

Rotation.

120
Conclusion
deduced
from this
proposition

121

122

Rotation. ready turning round an axis Aa (fig. 17.), receives an impulse which makes it actually turn round another axis Cc , there *has been propagated to each particle* a force precisely competent to produce, not the motion, but the *change of motion* which takes place in that particle, that is, a force which, when compounded with the inherent force of its primitive motion, produces the new motion; that is (by this theorem), a force which alone would have caused it to turn round a third axis Bb , with a rotation making the other constituent of the actual rotation round Cc .

123 This must be considered as one of the most important propositions in dynamics, and gives a great extension to the doctrine of the composition of motion. We see that rotations are compounded in the same manner as other motions; and it is extremely easy to discover the composition. We have only to suppose a sphere described round the centre of the body; and the equator of this sphere corresponding to any primitive position of the axis of rotation gives us the direction and velocity of the particles situated in it. Let another great circle cut this equator in any point; it will be the equator of another rotation. Set off an arch of each from the point of intersection, proportional to the angular velocity of each rotation, and complete the spherical parallelogram. The great circle, which is the diagonal of this parallelogram, will be the equator of the rotation, which is actually compounded of the other two.

124 And thus may any two rotations be compounded. We have given an instance of this in the solution of the problem of the *PRECESSION of the Equinoxes*, Vol. XV. p. 463.

125 It appears plainly in the demonstration of this theorem that the axis Cc is a new line in the body. The change of rotation is not accomplished by a transference of the poles and equator of the former rotation to a new situation, in which they are again the poles and equator of the rotation; for we see that in the rotation round the axis Cc , the particle of the body which was formerly the pole A is describing a circle round the axis Cc . Not knowing this composition of rotations, Newton, Walmesly, Simpson, and other celebrated mathematicians, imagined, that the axis of the earth's rotation remained the same, but changed its position. In this they were confirmed by the constancy of the observed latitudes of places on the surface of the earth. But the axis of the earth's rotation really changes its place, and the poles shift through different points of its surface; but these different points are too near each other to make the change sensible to the nicest observation.

126 **Respecting the position of the axis of rotation** It would seem to result from these observations, that it is impossible that the axis of rotation can change its position in absolute space without changing its position in the body, contrary to what we experience in a thousand familiar instances; and indeed this is impossible by any one change. We cannot by the impulse of any one force make a body which is turning round the axis Aa change its position and turn round the same material axis brought into the position Cc . In the same way that a body must pass through a series of intermediate points, in going from one end of a line to the other, so it must acquire an infinite series of intermediate rotations (each of them momentary) before the same material axis passes into another position, so as to become an axis of rotation. A momentary impulse

may make a great change of the position of the axis of rotation, as it may make in the velocity of a rectilinear motion. Thus although the rotation round Aa be indefinitely small, if another equally small rotation be impressed round an axis Bb perpendicular to Aa , the axis will at once shift to Cc half way between them; but a succession of rotations is necessary for carrying the primitive material axis into a new position, where it is again an axis. This transference, however, is possible, but gradual, and must be accomplished by a continuation of impulses totally different from what we would at first suppose. In order that A may pass from A to C , it is not enough that it gets an impulse in the direction AC . Such an impulse would carry it thither, if the body had not been whirling round Aa by the mere perseverance of matter in its state of motion; but when the body is already whirling round Aa , the particles in the circle IPi are moving in the circumference of that circle; and since that circle also partakes of the motion given to A , every particle in it must be incessantly deflected from the path in which it is moving. The continual agency of a force is therefore necessary for this purpose; and if this force be discontinued, the point A will immediately quit the plane of the arch AC , along which we are endeavouring to move it, and will start up.

This is the theorem which we formerly said would enable us to overcome the difficulties in the investigation of the axis of rotation.

128 Thus we can discover what Mr Landen calls the evagations of the poles of rotation by the action of centrifugal forces: For in fig. 16. the known velocity of the ball A and the radius AC of its circle of rotation will give us the centrifugal force by which the balls tend to turn in the plane $DA\delta BD$. This gives the axis Dd a tendency to move in a plane perpendicular to the plane of the figure; and its separation from the poles D and d does not depend on the separation of the connecting rod AB from its present inclination to Dd , but on the angle which the spiral path of the ball makes with the plane of a circle of rotation round Dd . The distance of the new poles from D and d is an arch of a circle which measures the angle made by the spiral with the circle of rotation round the primitive axis. This will gradually increase, and the mathematical axis of rotation will be describing a spiral round D and d , gradually separating from these points, and again approaching them, and coinciding with them again, at the time that the balls themselves are most of all removed from their primitive situation, namely, when A is in the place of B .

129 The same theorem also enables us to find the incipient axis of rotation in the complicated cases which are almost inaccessible by means of the elementary principles of rotation. And the incipient axis in complicated cases.

130 Thus, when the centres of oscillation and percussion do not coincide, as we supposed in fig. 5. and 12. Suppose, first, that they do coincide, and find the position of the axis ab , and the angular velocity of the rotation. Then find the centre of percussion, the axis Pp , and the momentum round it, and the angular velocity which this momentum would produce. Thus we have obtained two rotations round given axes, and with given angular velocities. Compound these rotations by this theorem, and we obtain the required position of the true

Rotation. true incipient axis of rotation, and the angular velocity, without the intricate process which would otherwise have been necessary.

131 If the body is of such a shape, that the forces in the plane DCG do not balance each other, we shall then discover a momentum round an axis perpendicular to this plane. Compound this rotation in the same manner with the rotation round D*d*.

132 **Position of the axis when the centres of percussion and rotation do not coincide.** And from this simple view of the matter we learn (what would be difficult to discover in the other way), that when the centre of percussion does not coincide with that of rotation, the axis is in the plane DGC, though not perpendicular to PG. But when there is a momentum round an axis perpendicular to this plane, the incipient axis of rotation is neither perpendicular to PC, nor in a plane perpendicular to that passing through the centre in the direction of the impelling force.

We must content ourselves with merely pointing out these tracks of investigation to the curious reader, and recommending the cultivation of this most fruitful theorem of Father Frisi.

133 **Concluding remarks on seamanship.** These are by no means speculations of mere curiosity, interesting to none but mathematicians: the noblest art which is practised by man must receive great improvement from a complete knowledge of this subject. We mean the art of SEAMANSHIP. A ship, the most admirable of machines, must be considered as a body in free space, impelled by the winds and waters, and continually moved round spontaneous axes of conversion, and incessantly checked in these movements. The trimming of the sails, the action of the rudder, the very disposition of the loading, all affect her versatility. An experienced seaman knows by habit how to produce and facilitate these motions, and to check or stop such as are inconvenient. Experience, without any reflection or knowledge how and why, informs him what position of the rudder produces a deviation from the course. A sort of common sense tells him, that, in order to make the ship turn her head away from the wind, he must increase the surface or the obliquity of the head sails, and diminish the power of the sails near the stern. A few other operations are dictated to him by this kind of common sense; but few, even of old seamen, can tell why a ship has such a tendency to bring her head up in the wind, and why it is so necessary to crowd the fore part of the ship with sails; fewer still know that a certain shifting of the loading will facilitate some motions in different cases; that the crew of a great ship running suddenly to a particular place shall enable the ship to accomplish a movement in a stormy sea which could not be done otherwise; and perhaps not one in ten thousand can tell why this procedure will be successful. But the mathematical inquirer will see all this; and it would be a most valuable acquisition to the public, to have a manual of such propositions, deduced from a careful and judicious consideration of the circumstances, and freed from that great complication and intricacy which only the learned can unravel, and expressed in a familiar manner, clothed with such reasoning as will be intelligible to the unlearned; and though not accurate, yet persuasive. Mr Bouguer, in his *Traité du Navire*, and in his *Manœuvre des Vaisseaux*, has delivered a great deal of useful information on this subject; and Mr Bezout has made a very useful abstract of these works in his *Cours de Mathématique*. But the subject

is left by them in a form far too abstruse to be of any general use: and it is unfortunately so combined with or founded on a false theory of the action and resistance of fluids, that many of the propositions are totally inconsistent with experience, and many maxims of seamanship are false. This has occasioned these doctrines to be neglected altogether. Few of our professional seamen have the preparatory knowledge necessary for improving the science; but it would be a work of immense utility, and would acquire great reputation to the person who successfully prosecutes it.

We shall mention under the article SEAMANSHIP the chief problems, and point out the mechanical principles by which they may be solved.

ROTHERAM, a town in the West Riding of Yorkshire, seated on the river Don, near which there is a handsome stone-bridge. It is a well-built place, and the market is large for provisions. W. Long. 1. 10. N. Lat. 53. 25.

ROTHSAY, a town in the isle of Bute, of which it is the capital. It is a well-built town of small houses, and about 200 families; and is within these few years much improved. It has a good pier, and is seated at the bottom of a fine bay, whose mouth lies exactly opposite to Loch Steven in Cowal. Here is a fine depth of water, a secure retreat, and a ready navigation down the Frith for an export trade. Magazines of goods for foreign parts might be most advantageously erected here. The women of this town spin yarn, the men support themselves by fishing. W. Long. 5. 0. N. Lat. 55. 50.

Rothsay gives the title of Duke to the prince of Scotland, a title which was formerly accompanied with suitable revenues, powers, and privileges. Of the origin of this title we have the following account from the pen of the learned Dr McLeod of Glasgow. Some time between the 16th of March and the 26th of October 1308, John of Gaunt, who is styled John duke of Aquitaine and Lancaster, uncle to the king of England, and David, who is styled earl of Carrick, eldest son of the king of Scotland, met for the purpose of settling the borders, and terminating all matters in dispute. At a subsequent interview between the same parties, David is styled Duke of Rothsay. "This innovation probably proceeded on an idea, to which the interview of the two princes might naturally give rise, that it was unsuitable, and unworthy of the Scottish national dignity, that the princes of England should enjoy a title of nobility, which was esteemed to be of higher rank than that possessed by the hereditary prince of Scotland." And this, in the opinion of our author, was the occasion of introducing the title of Duke into Scotland.

ROTTBELLIA, in botany; a genus of the digynia order, belonging to the triandria class of plants. The rachis is jointed, roundish, and in many cases filiform; the calyx is ovate, lanceolated, flat, simple, or bipartite; the florets are alternate on the winding rachis.

ROTONDO, or **ROTUNDO**, in architecture, an appellation given to any building that is round both within and without; whether it be a church, a saloon, or the like. The most celebrated rotundo of the ancients is the pantheon at Rome. See **PANTHEON**.

ROTTEN-STONE, a mineral found in Derbyshire, and

Rotheram
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Rotten-
stone.

Rotterdam. and used by mechanics for all sorts of finer grinding and polishing, and sometimes for cutting of stones. According to Ferber, it is a tripoli mixed with calcareous earth.

ROTTENNESS. See PUTREFACTION.

ROTTERDAM, is a city in the province of Holland, in E. Long. 4. 20. N Lat. 52. situated on the north bank of the river Maese, about 37 miles south of Amsterdam, nine south-east of the Hague, and 15 to the eastward of Briel. It is a large and populous city, of a triangular figure, handsomely built of brick, the streets wide and well paved. There are ten gates to the town, six of which are at the land side and four at the side of the Maese. It is supposed to take its name from the *Roter*, or *Rotter*, a little river that falls into the canals of this city, and from *Dam*, a dike. It is uncertain when it was first built; and though it is supposed to be very ancient, yet we find no mention made of it before the 13th century. In the year 1270 it was surrounded with ramparts, and honoured with several privileges; but 27 years after it was taken by the Flemings. In the year 1418, Brederode chief of the Haeks made himself master of it; since which time it has continued yearly to increase by means of the conveniency of its harbour. Its arms are vert, a pale argent, quarterly in a chief on the first and third, or, a lion spotted sable, on the second and fourth a lion spotted gules.

Rotterdam is not reckoned one of the principal cities of the province, because it has not been always in its present flourishing condition. The Dutch call it the first of the second rank, whereas it ought to be esteemed the second of the first, being, next to Amsterdam, the most trading town in the United Provinces. Its port is very commodious; for the canals, which run through most parts of the town, bring the ships, some of 200 or 300 ton, up to the merchants door; a conveniency for loading and unloading which is not to be found in other places. The great ships go up into the middle of the town by the canal into which the Maese enters by the old head, as it comes out by the new. A stranger, upon his first entering this place, is astonished at the beautiful confusion of chimneys intermixed with tops of trees with which the canals are planted, and streamers of vessels; insomuch that he can hardly tell whether it be fleet, city, or forest. The Harring Vliet is a very fine street; most of the houses are new, and built of hewn stone; but the grandest as well as most agreeable street in Rotterdam is the Bomb Quay, which lies parallel with the Maese; on one side it is open to the river, and the other is ornamented with a grand facade of the best houses in the city, inhabited chiefly by the English; they are five or six stories high, massy and very clumsy: wherever there is any attempt at ornament, it is the worst that can be conceived. One sees no Grecian architecture, except Doric entablatures, stuck upon the top of the upper story, without pilasters; Ionic volutes, turned often the wrong way, and an attempt at Corinthian capitals, without any other part of the order. The doors are large, and stuck with great knobs and clumsy carving; you ascend to them, not in front, but by three or four steps going up on each side, and you are assisted by iron rails of a most immense thickness. These houses are almost all window; and the window shutters and frames being painted green, the glass has all a green cast, which is

helped by the reflection from the trees that overshadow Rotterdam. their houses, which, were it not for this circumstance, would be intolerably hot, from their vicinity to the canals. Most of the houses have looking-glasses placed on the outsides of the windows, on both sides, in order that they may see every thing which passes up and down the street. The stair-cases are narrow, steep, and come down almost to the door. In general, the houses rise with enormous steep roofs, turning the gable end to the street, and leaning considerably forward, so that the top often projects near two feet beyond the perpendicular. The Bomb Quay is so broad, that there are distinct walks for carriages and foot-passengers, lined and shaded with a double row of trees.—You look over the river on some beautiful meadows, and a fine avenue of trees, which leads to the Pest-house: it seems to be an elegant building, and the trees round it are so disposed as to appear a thick wood. This street is at least half a mile in length, and extends from the old to the new-head, the two places where the water enters to fill the canals of this extensive city. When water runs through a street, it then assumes the name of a canal, of which kind the Heeren-fleet has the pre-eminence; the houses are of free-stone, and very lofty; the canal is spacious, and covered with ships: at one end stands the English church, a neat pretty building, of which the bishop of London is ordinary.

This port is much more frequented by the British merchants than Amsterdam, insomuch that, after a frost, when the sea is open, sometimes 300 sail of British vessels sail out of the harbour at once. There is always a large number of British subjects who reside in this town, and live much in the same manner as in Great Britain. The reason of the great traffic between this place and England, is because the ships can generally load and unload, and return to England from Rotterdam, before a ship can get clear from Amsterdam and the Texel. Hence the English merchants find it cheaper and more commodious, after their goods are arrived at Rotterdam, to send them in boats over the canals to Amsterdam. Another great advantage they have here for commerce is, that the Maese is open, and the passage free from ice, much sooner in the spring than in the Y and Zuyder-sea, which lead to Amsterdam.

The glass-house here is one of the best in the seven provinces; it makes abundance of glass-toys and enamelled bowls, which are sent to India, and exchanged for china-ware, and other oriental commodities.

The college of admiralty here is called the *college of the Maese*, the chief of all Holland and the United Provinces. The lieutenant-general, admiral of Holland, is obliged to go on board of a Rotterdam ship in the Maese when he goes to sea, and then he commands the Squadron of the Maese.

On the east side of the city there is a large basin and dock, where ship-carpenters are continually employed for the use of the admiralty, or of the East India company. But the largest ships belonging to the admiralty of Rotterdam are kept at Helvoetsluys, as the most commodious station, that place being situated on the ocean; for it requires both time and trouble to work a large ship from the dock of Rotterdam to the sea.

Rotterdam has four Dutch churches for the established religion. There is one thing very remarkable in

Rotterdam
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Rouen.

in respect to the great church, that the tower which leaned on one side was set up straight in the year 1655, as appears by the inscription engraved on brass at the bottom of the tower withinside. In the choir of this church are celebrated, with no small solemnity, the promotions made in the Latin schools. Besides, there are two English churches, one for those of the church of England and the other for the Presbyterians; and one Scotch church; as likewise one Lutheran, two Arminian, two Anabaptist, four Roman Catholic chapels, and one Jewish synagogue.

Though the public buildings here are not so stately as those of Amsterdam and some other cities, yet there are several of them well worth seeing. The great church of St Laurence is a good old building, where are many stately monuments of their old admirals. From the top of this church one may see the Hague, Delft, Leyden, Dort, and most of the towns of south Holland. There are several fine market-places, as three fish-markets, the great-market, the new-market, and the hogs-market. The Stadthouse is an old building, but the chambers large and finely adorned. The magazines for fitting out their ships are very good structures. The Exchange is a noble building, begun in the year 1720, and finished in 1736. Upon the Great Bridge in the market-place there is a fine brass statue erected to the great Erasmus, who was born in this city in 1467, and died at Basil in Switzerland. He is represented in a furred gown, and a round cap, with a book in his hand. The statue is on a pedestal of marble, surrounded with rails of iron. Just by, one may see the house where this great man was born, which is a very small one, and has the following distich written on the door:

*Ædibus his ortus, mundum decoravit, Erasmus,
Artibus, ingenio, religione, fide.*

Rotterdam and the whole of the United Provinces are now in the possession of the French Republic. See *REVOLUTION* and *UNITED PROVINCES*.

ROTULA, in anatomy, the small bone of the knee, called also *patella*.

ROTUNDUS, in anatomy, a name given to several muscles otherwise called *teres*.

ROUAD. See *ARADUS*.

ROUANE, or ROANE, an ancient and considerable town of France, in Lower Forez, with the title of a duchy; seated on the river Loire, at the place where it begins to be navigable for boats. E. Long. 4. 9. N. Lat. 46. 2.

ROUCOU, in dyeing, the same with *ANOTTA* and *Bixa*.

ROUEN, a city of France, and capital of Normandy, had an archbishop's see, a parliament, a mint, a handsome college, an academy, two abbeys, and an old castle. It is seven miles in circumference, and surrounded with six suburbs; and contained before the revolution 35 parishes, and 24 convents for men and women. The metropolitan church has a very handsome front, on which are two lofty steeples, whence there is a fine view of the town and country. The great bell is 13 feet high and 11 in diameter. The church of the Benedictine abbey is much admired by travellers. The parliament-house is adorned with beautiful tapestry and fine pictures. There are a great number of foun-

tains, though the houses are ordinary; but the walk upon the quay is very pleasant, and there are 13 gates from thence into the city. The number of the inhabitants are about 60,000, and they have several wool-len manufactures. It is seated on the river Seine; and the tide rises so high, that vessels of 200 tons may come up to the quay: but one of the greatest curiosities is the bridge, of 270 paces in length, supported by boats, and consequently is higher or lower according to the tide. It is paved, and there are ways for foot-passengers on each side, with benches to sit upon; and coaches may pass over it at any hour of the day or night. It is often called *Roan* by English historians; and is 50 miles south-west of Amiens, and 70 north-west of Paris.

Though large, and enriched by commerce, Rouen is not an elegant place. The streets are almost all narrow, crooked, and dirty; the buildings old and irregular. It was fortified by St Louis in 1253, but the walls are now demolished. The environs, more peculiarly the hills which overlook the Seine, are wonderfully agreeable, and covered with magnificent villas. E. Long. 1. 10. N. Lat. 49. 26.

ROVERE, or ROVEREDO, a strong town of the Tyrol, on the confines of the republic of Venice; seated on the river Adige, at the foot of a mountain, and on the side of a stream, over which there is a bridge, defended by two large towers and a strong castle, 10 miles south of Trent. The town is tolerably well built, and governed by a chief magistrate, styled a *Podestat*. There are several churches and convents, that contain nothing worthy of notice. The most remarkable thing, and what they call the great wonder of Roveredo, is its spinning-house for a manufacture of silk, in which they have a great trade here to the fairs of Bolzano. They have also a very good trade in wine. Betwixt Trent and Roveredo is the strong fort of Belem, belonging to the house of Austria. It is situated on a rock, and commands the roads at the foot of the mountain. E. Long. 11. 1. N. Lat. 46. 12.

ROUERGUE, a province of France, in the government of Guienne; bounded on the east by the Cevennes and Gevaudan, on the west by Querci, on the north by the same and Auvergne, and on the south by Languedoc. It is 75 miles in length, and 50 in breadth; not very fertile, but feeds a number of cattle, and has mines of copper, iron, alum, vitriol, and sulphur. It is divided into a county, and the upper and lower marche. Rhodéz is the capital town.

ROVIGNO, a populous town of Italy, in Istria, with two good harbours, and quarries of fine stone. It is seated in a territory which produces excellent wine, in a peninsula on the western coast. E. Long. 13. 53. N. Lat. 45. 14.

ROVIGO, is a town of Italy, in the territory of Venice, and capital of the Polesin di Rovigo, in E. Long. 12. 25. N. Lat. 45. 6. It is a small place, poorly inhabited, and encompassed with ruinous walls. Formerly it belonged to the duke of Ferrara, but has been subject to the Venetians since 1500, and is famous for being the birth-place of that learned man Coelius Rhodoginus. It was built upon the ruins of Adria, anciently a noble harbour one mile from Rovigo, that gave name to the gulph, but now a half-drowned vil-lage, inhabited by a few fishermen.

Rouen
||
Rovigo.

ROUND.

Roundelay
||
Rounds.

ROUNDELAY, or **ROUND**, a sort of ancient poem, derived its name, according to Menage, from its form, and because it still turns back again to the first verse, and thus goes round. The common roundelay consists of 13 verses, eight of which are in one rhyme and five in another. It is divided into couplets; at the end of the second and third of which the beginning of the roundelay is repeated; and that, if possible, in an equivocal or punning sense. The roundelay is a popular poem in France, but is little known among us. Marot and Voiture have succeeded the best in it. Rapin remarks, that if the roundelay be not very exquisite, it is intolerably bad. In all the ancient ones, Menage observes, that the verse preceding has a less complete sense, and yet joins agreeably with that of the close, without depending necessarily thereon. This rule, well observed, makes the roundelay more ingenious, and is one of the finesses of the poem. Some of the ancient writers speak of the roundelay or roundel as a kind of air appropriated to dancing; and in this sense the term seems to indicate little more than dancing in a circle with the hands joined.

ROUND-HOUSE, a kind of prison for the nightly watch in London to secure disorderly persons till they can be carried before a magistrate.

ROUND-HOUSE, in a ship, the uppermost room or cabin on the stern of a ship, where the master lies.

ROUNDS, in military matters, a detachment from the main-guard, of an officer or a non-commissioned officer and six men, who go round the rampart of a garrison, to listen if any thing be stirring without the place, and to see that the centinels be diligent upon their duty, and all in order. In strict garrisons the rounds go every half-hour. The centinels are to challenge at a distance, and to rest their arms as the round passes. All guards turn out, challenge, exchange the parole, and rest their arms, &c.

ROUNDS are ordinary and extraordinary. The ordinary rounds are three; the town-major's round, the grand-round, and the visiting-round.

Manner of going the ROUNDS. When the town-major goes his round, he comes to the main-guard, and demands a serjeant and four or six men to escort him to the next guard; and when it is dark, one of the men is to carry a light.

As soon as the sentry at the guard perceives the round coming, he shall give notice to the guard, that they may be ready to turn out when ordered; and when the round is advanced within about 20 or 30 paces of the guard, he is to challenge briskly; and when he is answered by the serjeant who attends the round, *Town-major's round*, he is to say, *Stand round!* and rest his arms; after which he is to call out immediately, *Serjeant, turn out the guard, town-major's round.* Upon the sentry calling, the serjeant is to turn out the guard immediately, drawing up the men in good order with shouldered arms; the officer placing himself at the head of it, with his arms in his hand. He then orders the serjeant and four or six men to advance toward the round, and challenge: the serjeant of the round is to answer, *Town-major's round*; upon which the serjeant of the guard replies, *Advance, serjeant, with the parole!* at the same time ordering his men to rest their arms. The serjeant of the round advances alone, and gives the serjeant of the guard the pa-

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role in his ear, that none else may hear it; during which period the serjeant of the guard holds the spear of his halbert at the other's breast. The serjeant of the round then returns to his post, whilst the serjeant of the guard leaving his men to keep the round from advancing, gives the parole to his officer. This being found right, the officer orders his serjeant to return to his men; says, *Advance, town-major's round!* and orders the guard to rest their arms; upon which the serjeant of the guard orders his men to wheel back from the centre, and form a lane, through which the town-major is to pass (the escort remaining where they were), and go up to the officer and give him the parole, laying his mouth to his ear. The officer holds the spear of his esparton at the town-major's breast while he gives him the parole.

The design of rounds is not only to visit the guards, and keep the centinels alert; but likewise to discover what passes in the outworks, and beyond them.

ROUSSILLON, a province of France, in the Pyrenees, bounded on the east by the Mediterranean sea, on the west by Cerdagne, on the north by Lower Languedoc, and on the south by Catalonia, from which it is separated by the Pyrenees. It is a fertile country, about 50 miles in length, and 25 in breadth, and remarkable for its great number of olive-trees. Perpignan is the capital town.

ROUSSEAU (James), an eminent painter, was born at Paris in the year 1630, and studied first under Swanvelt, who had married one of his relations; after which he improved himself by travelling into Italy, practising solely in perspective, architecture, and landscape. On his return home, he was employed at Marly. He distinguished himself very much in painting buildings, and by his knowledge of, and attention to, the principles of perspective. Louis XIV. employed him to decorate his hall of devices at St Germain-en-Laye, where he represented the operas of Lulli. But being a Protestant, he quitted France on the persecution of his brethren, and retired to Switzerland. Louis invited him back; he refused, but sent his designs, and recommended a proper person to execute them. After a short stay in Switzerland, he went to Holland; whence he was invited over to England by Ralph duke of Montague, to adorn his new house in Bloomsbury, where he painted much. Some of his pictures, both in landscape and architecture, are over doors at Hampton-court; and he etched some of his own designs. His perspectives having been most commonly applied to decorate courts or gardens, have suffered much from the weather. Such of them as remain are monuments of an excellent genius. The colours are durable and bright, and the choice of them most judicious. He died in Soho-square, about the year 1693, aged 63.

ROUSSEAU (John Baptist), a celebrated French poet, was born at Paris in April 1671. His father, who was a shoemaker in good circumstances, made him study in the best colleges of Paris, where he distinguished himself by his abilities. He at length applied himself entirely to poetry, and soon made himself known by several short pieces, that were filled with lively and agreeable images, which made him sought for by persons of the first rank, and men of the brightest genius. He was admitted in quality of *élève*, or pupil, into the academy of Inscriptions and Belles Lettres, in 1701,

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Rousseau. and almost all the rest of his life attached himself to some of the great lords. He attended marshal Tallard into England, in quality of secretary, and here contracted a friendship with St Evremond. At his return to Paris, he was admitted into the politest company, lived among the courtiers, and seemed perfectly satisfied with his situation; when, in 1708, he was prosecuted for being the author of some couplets, in which the characters of several persons of wit and merit were blackened by the most atrocious calumnies. This prosecution made much noise; and Rousseau was banished in 1712 out of the kingdom, to which he was never more to return, by a decree of the parliament of Paris. However, he always steadily denied, and even on his death-bed, his being the author of these couplets.— From the date of this sentence he lived in foreign countries, where he found illustrious protectors. The count de Luc, ambassador of France, in Switzerland, took him into his family, and studied to render his life agreeable. He took him with him to the treaty of Baden in 1714, where he was one of the plenipotentiaries, and presented him to prince Eugene, who entertaining a particular esteem for him, took him to Vienna, and introduced him to the emperor's court. Rousseau lived about three years with prince Eugene; but having lost his favour by satirising one of his mistresses, he retired to Brussels, where he afterwards usually resided, and where he met with much attention and much generosity, as we shall soon mention.— It was here that his disputes with Voltaire commenced, with whom he had become acquainted at the college of Louis the Great, who then much admired his turn for poetry. At that time Voltaire assiduously cultivated the acquaintance of Rousseau, and made him a present of all his works; and Rousseau, flattered by his respect, announced him as a man who would one day be a glory to the age. The author of the *Henriad* continued to consult him about his productions, and to lavish on him the highest encomiums, while their friendship daily increased. When they again met at Brussels, however, they harboured the blackest malice against one another. The cause of this enmity, as Rousseau and his friends tell the story, was a lecture which he had composed from his *Epistle to Julia*, now *Urania*. This piece frightened Voltaire, as it plainly discovered his rage against him. The young man, vexed at these calumnies, understood the whole as thrown out against him. This is what Rousseau asserts. But his adversaries, and the friends of the poet whom he cried down, suspected him, perhaps rather rashly, of having employed sarcasms, because he thought that his own reputation was in danger of being eclipsed by that of his rival. What is very singular, these two celebrated characters endeavoured each of them to prepossess the public with a bad opinion of the other, which they themselves never entertained in reality, and to smother in their breast that esteem for each other which, in defiance of all their exertions, still held its place. Rousseau, from the period of this dispute, always represented Voltaire as a buffoon, as a writer possessing neither taste nor judgment, who owed all his successes to a particular mode which he pursued. As a poet he considered him as inferior to Lucan, and little superior to Pradon. Voltaire treated him still worse. Rousseau, according to him, was nothing better than a plagiarist,

who could make shift to rhyme, but could not make any reflections; that he had nothing but the talent of arranging words, and that he had even lost that in foreign countries. He thus addresses him, in a piece little known:

*Aussitôt le Dieu qui m'inspire
T'arracha le luth et la lyre
Qu'avoient déshonorés tes mains;
Tu n'es plus qu'un reptile immonde,
Rebut du Parnasse et du monde
Enféveli dans tes venins.*

In consequence of the little esteem in which Rousseau was held at Brussels, he could never forget Paris. The grand-prior of Vendome, and the baron de Breteuil, solicited the regent duke of Orleans to allow him to return; which favour was obtained. But our poet, before he would make use of the *lettres de rapel* issued in his favour, demanded a review of his process, which he wished to be repealed, not as a matter of favour, but by a solemn judgment of court; but his petition was refused. He then came over, in 1721, to England, where he printed *A Collection of his Works*, in 2 vols 12mo, at London. This edition, published in 1723, brought him near 10,000 crowns, the whole of which he placed in the hands of the Ostend company. The affairs of this company, however, soon getting into confusion, all those who had any money in their hands lost the whole of it, by which unfortunate event Rousseau, when arrived at that age when he stood most in need of the comforts of fortune, had nothing to depend upon but the generosity of some friends. Boutet, public notary in Paris, was peculiarly generous and attentive to him. He found a still greater asylum in the Duke d'Arenberg, whose table was open to him at all times; who being obliged in 1733 to go into the army in Germany, settled on him a pension of 1500 livres. But unfortunately he soon lost his good opinion, having been imprudent enough to publish in a Journal (of which Voltaire accused him), that the duke d'Arenberg was the author of those verses for which he himself had been banished France. He was therefore dismissed from his table, and his pride would not allow him to accept of the pension after this rupture. Brussels now became insupportable to him; and the count du Luc, and M. de Senozan, receiver-general of the church revenue, being informed of his disappointments, invited him to come privately to Paris, in the hopes of procuring a diminution of the period of his banishment. Some time previous to this Rousseau had published two new letters; one to P. Brumoi, on tragedy; the other to Rollin, on history. It is said, he expected from his letter to Brumoi to get the favour of all the Jesuits; and from the one to Rollin, the patronage of the Jansenists. He had likewise written an Ode, in praise of Cardinal de Fleury, on Peace, which met with a favourable reception, although it was not equal to some of his former pieces. He imagined his return to Paris would be found no difficult matter. He attempted it, and found he could not obtain a pass for a single year. Some say, that Rousseau had irritated some persons in power, by an allegory, called *The Judgment of Pluto*; in which piece he describes one of the principal judges, whole

Rousseau. whose skin Pluto had caused to be taken off, and stretched out on the seat in the bench. This satire, joined to the secret machinations of enemies, rendered all the attempts of his friends to procure his return abortive. After having staid three months at Paris, he returned to Brussels in February 1740, at which place he died March 17. 1741, strongly impressed with religious sentiments. Immediately before he received the viaticum, he protested he was not the author of those horrid verses which had so much embittered his life; and this declaration, in the opinion of the virtuous part of mankind, will be considered as a sufficient proof of his innocence. Some have said that Rousseau was profane, troublesome, capricious, forward, vindictive, envious, a flatterer, and a satirist. Others again represent him as a man full of candour and openness, a faithful and grateful friend, and as a Christian affected with a sense of religion.—Amidst such widely varied accounts it is difficult to form an opinion of his character. Such of our readers as wish to know more of this great poet may consult the Dictionary of M. Chaupepié, written with as much precision as impartiality, who endeavours to give a just idea of his character. From what he says, it does not appear that Rousseau can be cleared from the accusation brought against him of having attacked his benefactors. We believe he may be much more easily freed from the imputation brought against him by some of having disowned his father: for what occasion had Rousseau to conceal the obscurity of his birth? It exalted his own merit.

M. Seguy, in concert with M. the prince of la Tour Tassis, has given a very beautiful edition of his works, agreeable to the poet's last corrections. It was published in 1743, at Paris, in 3 vols. 4to, and in 4 vols. 12mo, containing nothing but what was acknowledged by the author as his own. It contains, 1. Four Books of Odes, of which the first are sacred odes, taken from the Psalms. "Rousseau (says Freron) unites in himself Pindar, Horace, Anacreon, and Malherbe. What fire, what genius, what flights of imagination, what rapidity of description, what variety of affecting strokes, what a crowd of brilliant comparisons, what richness of rhymes, what happy versification; but especially what inimitable expression! His verses are finished in the highest style of perfection that French verse is capable of assuming." The lyric compositions of Rousseau are, in general, above mediocrity. All his odes are not, however, of equal merit. The most beautiful are those which he has addressed to count du Luc, to Malherbe, to prince Eugene, to Vendôme, to the Christian princes; his Odes on the death of the prince de Conti, on the battle of Peterwaradin; and the Ode to Fortune, altho' there are certainly some few weak stanzas to be met with in it. There is considerable neatness in the composition of the Ode to a Widow, in his stanzas to the Abbé de Chaulieu, in his addresses to Roffignol, in his Odes to count de Bonneval, to M. Duche, and to count de Sinzindorf; and it is to be lamented that he wrote so few pieces of this kind, from which his genius seemed to lead him with difficulty. 2. Two books of Epistles, in verse. Although these do not want their beauties, yet there prevails too much of a misanthropic spirit in them, which takes away greatly from their excellence. He makes too frequent mention of his enemies and his mis-

fortunes; he displays those principles which are supported less on the basis of truth than on those various passions which ruled his mind at the time. He puts forth his anger in paradoxes. If he be reckoned equal to Horace in his odes, he is far inferior in his epistles. There is much more philosophy in the Roman poet than in him. 3. *Cantatas*. He is the father of this species of poetry, in which he stands unrivalled. His pieces of this sort breathe that poetical expression, that picturesque style, those happy turns, and those easy graces, which constitute the true character of this kind of writing. He is as lively and impetuous as he is mild and affecting, adapting himself to the passions of those persons whom he makes to speak. "I confess (says M. de la Harpe) that I find the cantatas of Rousseau more purely lyric than his odes, although he rises to greater heights in these. I see nothing in his cantatas but bold and agreeable images. He always addresses himself to the imagination, and he never becomes either too verbose or too prolix. On the contrary, in some of the best of his odes, we find some languishing stanzas, ideas too long delayed, and verses of inexcusable meanness." 4. *Allegories*, the most of which are happy, but some of them appear forced. 5. *Epigrams*, after the manner of Martial and Marot. He has taken care to leave out of this edition those pieces which licentiousness and debauchery inspired. They bear, indeed, as well as his other pieces, the marks of genius; but such productions are calculated only to dishonour their authors, and corrupt the heart of those who read them. 5. A book of *Poems on Various Subjects*, which sometimes want both ease and delicacy. The most distinguished are two eclogues, imitated from Virgil. 6. Four comedies in verse; the *Flatterer*, whose character is well supported; the *Imaginary Forefathers*, a piece which had much less success, although it affords sufficiently good sentiment; the *Capricious Man*, and the *Dupe of Himself*, pieces of very inconsiderable merit. 7. Three comedies in prose; the *Coffee-house*, the *Magic Girdle*, and the *Madragore*, which are little better than his other theatrical pieces. The theatre was by no means his forte; he had a genius more suited for satire than comedy, more akin to Boileau's than Moliere's. 8. A *Collection of Letters*, in prose. In this edition he has selected the most interesting.—There is a larger collection in 5 volumes. This last has done at the same time both injury and honour to his memory. Rousseau in it speaks both in favour of and against the very same persons. He appears too hasty in tearing to pieces the characters of those who displeased him. We behold in them a man of a steady character and an elevated mind, who wishes to return to his native country only that he might be enabled completely to justify his reputation. We see him again corresponding with persons of great merit and uncommon integrity, with the Abbé d'Olivet, Racine the son, the poets La Fosse and Duche, the celebrated Rolin, M. le Franc de Pompignan, &c. &c. We meet also with some anecdotes and exact judgments of several writers. A bookseller in Holland has published his port-folio, which does him no honour. There are, indeed, some pieces in this wretched collection which did come from the pen of Rousseau; but he is less to be blamed for them than they are who have drawn these works from that oblivion to which our great poet had

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configned them. A pretty good edition of his *Selected Pieces* appeared at Paris in 1741, in a small 12mo volume. His portrait, engraved by the celebrated Aved, his old friend, made its appearance in 1778, with the following motto from Martial:

Certior in nostro carmine vultus erit.

ROUSSEAU (John-James), was born at Geneva June 28. 1712. His father was by profession a clock and watch maker. At his birth, which, he says, was the first of his misfortunes, he endangered the life of his mother, and he himself was for a long time after in a very weak and languishing state of health; but as his bodily strength increased, his mental powers gradually opened, and afforded the happiest presages of future greatness. His father, who was a citizen of Geneva, was a well-informed tradesman; and in the place where he wrought he kept a Plutarch and a Tacitus, and these authors of course soon became familiar to his son. A rash juvenile step occasioned his leaving his father's house. "Finding himself a fugitive, in a strange country, and without money or friends, he changed (says he himself) his religion, in order to procure a subsistence." Bornex, bishop of Anneci, from whom he sought an asylum, committed the care of his education to Madame de Warrens, an ingenious and amiable lady, who had in 1726 left part of her wealth, and the Protestant religion, in order to throw herself into the bosom of the church. This generous lady served in the triple capacity of a mother, a friend, and a lover, to the new proselyte, whom she regarded as her son. The necessity of procuring for himself some settlement, however, or perhaps his unsettled disposition, obliged Rousseau often to leave this tender mother.

He possessed more than ordinary talents for music; and the Abbé Blanchard flattered his hopes with a place in the royal chapel, which he, however, failed in obtaining for him; he was therefore under the necessity of teaching music at Chamberi. He remained in this place till 1741, in which year he went to Paris, where he was long in very destitute circumstances. Writing to a friend in 1743, he thus expresses himself: "Every thing is dear here, but especially bread." What an expression; and to what may not genius be reduced! Meanwhile he now began to emerge from that obscurity in which he had hitherto been buried. His friends placed him with M. de Montaigu, ambassador from France to Venice. According to his own confession, a proud misanthropy and a peculiar contempt of the riches and pleasures of this world, constituted the chief traits in his character, and a misunderstanding soon took place between him and the ambassador. The place of depute, under M. Dupin, farmer-general, a man of considerable parts, gave him some temporary relief, and enabled him to be of some benefit to Madam de Warrens his former benefactress. The year 1750 was the commencement of his literary career. The academy of Dijon had proposed the following question: "Whether the *revival* of the arts and sciences has contributed to the refinement of manners?" Rousseau at first inclined to support the affirmative. "This is the *pons asinorum* (says a philosopher, at that time a friend of his), take the negative side of the question, and I'll promise you the greatest success."

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His discourse against the sciences, accordingly, having been found to be the best written, and replete with the deepest reasoning, was publicly crowned with the approbation of that learned body. Never was a paradox supported with more eloquence; it was not however a new one; but he enriched it with all the advantages which either knowledge or genius could confer on it. Immediately after its appearance, he met with several opponents of his tenets, which he defended; and from one dispute to another, he found himself involved in a formidable train of correspondence, without having ever almost dreamed of such opposition. From that period he decreased in happiness as he increased in celebrity. His "Discourse on the causes of inequality among mankind, and on the origin of social compacts," a work full of almost unintelligible maxims and wild ideas, was written with a view to prove that mankind are equal; that they were born to live apart from each other; and that they have perverted the order of nature in forming societies. He bestows the highest praise on the state of nature, and depreciates the idea of every social compact. This discourse, and especially the dedication of it to the republic of Geneva, are the *chef-d'œuvres* of that kind of eloquence of which the ancients alone had given us any idea. By presenting this performance to the magistrates, he was received again into his native country, and reinstated in all the privileges and rights of a citizen, after having with much difficulty prevailed on himself to abjure the Catholic religion. He soon, however, returned to France, and lived for some time in Paris. He afterwards gave himself up to retirement, to escape the shafts of criticism, and follow after the regimen which the frangury, with which he was tormented, demanded of him. This is an important epoch in the history of his life, as it is owing to this circumstance, perhaps, that we have the most elegant works that have come from his pen. His "Letter to M. d'Alembert" on the design of erecting a theatre at Geneva, written in his retirement, and published in 1757, contains, along with some paradoxes, some very important and well-handled truths. This letter first drew down upon him the envy of Voltaire, and was the cause of those indignities with which that author never ceased to load him. What is singular in him, is, that although so great an enemy to theatrical representations himself, he caused a comedy to be printed, and in 1752 gave to the theatre a pastoral (The Village Conjuror), of which he composed both the poetry and music, both of them abounding with sentiment and elegance, and full of innocent and rural simplicity. What renders the Village Conjuror highly delightful to persons of taste, is that perfect harmony of words and music which everywhere pervades it; that proper connection among the parties who compose it; and its being perfectly correct from beginning to end. The musician hath spoken, hath thought, and felt like a poet. Every thing in it is agreeable, interesting, and far superior to those common affected and insipid productions of our modern petit-dramas. His Dictionary of Music affords several excellent articles; some of them, however, are very inaccurate. "This work (says M. la Borde), in his Essay on Music, has need to be written over again, to save much trouble to those who wish to study it, and prevent them from falling into errors, which

Rousseau. it is difficult to avoid, from the engaging manner in which Rousseau drags along his readers." The passages in it which have any reference to literature may be easily distinguished, as they are treated with the agreeableness of a man of wit and the exactness of a man of taste. Rousseau, soon after the rapid success of his *Village Conjuror*, published a *Letter on French Music*, or rather *against French music*, written with as much freedom as liveliness. The exasperated partisans of French comedy treated him with as much fury as if he had conspired against the state. A crowd of insignificant enthusiasts spent their strength in outcries against him. He was insulted, menaced, and lampooned. Harmonic fanaticism went even to hang him up in effigy.

That interesting and tender style, which is so conspicuous throughout the *Village Conjuror*, animates several letters in the *New Heloisa*, in six parts, published 1761, in 12mo. This epistolary romance, of which the plot is ill-managed, and the arrangement bad, like all other works of genius, has its beauties as well as its faults. More truth in his characters and more precision in his details were to have been wished. The characters, as well as their style, have too much sameness, and their language is too affected and exaggerated. Some of the letters are indeed admirable, from the force and warmth of expression, from an effervescence of sentiments, from the irregularity of ideas which always characterise a passion carried to its height. But why is so affecting a letter so often accompanied with an unimportant digression, an insipid criticism, or a self-contradicting paradox? Why, after having shone in all the energy of sentiment, does he on a sudden turn unaffectionate? It is because none of the personages are truly interesting. That of St Preux is weak, and often forced. Julia is an assemblage of tenderness and pity, of elevation of soul and of coquetry, of natural parts and pedantry. Wolmar is a violent man, and almost beyond the limits of nature. In fine, when he wishes to change his style, and adopt that of the speaker, it may easily be observed that he does not long support it, and every attempt embarrasses the author and cools the reader. In the *Heloisa*, Rousseau's unlucky talent of rendering every thing problematical, appears very conspicuous; as in his arguments in favour of and against duelling, which afford an apology for suicide, and a just condemnation of it: in his facility in palliating the crime of adultery, and his very strong reasons to make it abhorred: on the one hand, in declamations against social happiness; on the other, in transports in favour of humanity: here, in violent rhapsodies against philosophers; there, by a rage for adopting their opinions: the existence of God attacked by sophistry, and Atheists confuted by the most irrefragable arguments; the Christian religion combated by the most specious objections, and celebrated with the most sublime eulogies.

His *Emilia* afterwards made more noise than the new *Heloisa*. This moral romance, which was published in 1762, in four vols 12mo, treats chiefly of education. Rousseau wished to follow nature in every thing; and though his system in several places differs from received ideas, it deserves in many respects to be put in practice, and with some necessary modifications it has been so. His precepts are expressed with the force and dignity of a mind full of the leading truths of morality. If he has not always been virtuous, no body at least

has felt it more, or made it appear to more advantage. Every thing which he says against luxury shows the vices and conceited opinions of his age, and is worthy at once of Plato or of Tacitus. His style is peculiar to himself. He sometimes, however, appears, by a kind of affected rudeness and asperity, to ape at the mode of Montaigne, of whom he is a great admirer, and whose sentiments and expressions he often clothes in a new dress. What is most to be lamented is, that in wishing to educate a young man as a Christian he has filled his third volume with objections against Christianity. He has, it must be confessed, given a very sublime eulogium on the gospel, and an affecting portrait of its divine Author: but the miracles, and the prophecies which serve to establish his mission, he attacks without the least reserve. Admitting only natural religion, he weighs every thing in the balance of reason; and this reason being false, leads him into dilemmas very unfavourable to his own repose and happiness.

He dwelt from 1754 in a small house in the country near Montmorency; a retreat which he owed to the generosity of a farmer-general. The cause of his love for this retirement was, according to himself, "that invincible spirit of liberty which nothing could conquer, and in competition with which honours, fortune, and reputation, could not stand. It is true, this desire of liberty has occasioned less pride than laziness; but this indolence is inconceivable. Every thing startles it; the most inconsiderable reciprocities of social life are to it insupportable. A word to speak, a letter to write, a visit to pay, things necessary to be done, are to me punishments. Hear my reasons. Although the ordinary intercourse between mankind be odious to me, intimate friendship appears to me very dear; because there are no mere ceremonies due to it; it agrees with the heart, and all is accomplished. Hear, again, why I have always shunned kindnesses so much; because every act of kindness requires a grateful mind, and I find my heart ungrateful, from this alone, that gratitude is a duty. Lastly, that kind of felicity which is necessary for me, is not so much to do that which I wish, as not to do what I wish, not to do." Rousseau enjoyed this felicity which he so much wished in his retirement. Without entirely adopting that too rigorous mode of life pursued by the ancient Cynics, he deprived himself of every thing that could in any measure add fuel to this wished-for luxury, which is ever the companion of riches, and which inverts even custom itself. He might have been happy in this retreat, if he could have forgot this public which he affected to despise; but his desire after a great name got the better of his self-love, and it was this thirst after reputation which made him introduce so many dangerous paragraphs in his *Emilia*.

The French parliament condemned this book in 1762, and entered into a criminal prosecution against the author, which forced him to make a precipitate retreat. He directed his steps towards his native country, which shut its gates upon him. Proscribed in the place where he first drew breath, he sought an asylum in Switzerland, and found one in the principality of Neuchâtel. His first care was to defend his *Emilia* against the mandate of the archbishop of Paris, by whom it had been anathematized. In 1763 he published a letter, in which he re-exhibits all his errors, set off with

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Rousseau. the most animated display of eloquence, and in the most insidious manner. In this letter he describes himself as "more vehement than celebrated in his researches, but sincere on the whole, even against himself; simple and good, but sensible and weak; often doing evil, and always loving good; united by friendship, never by circumstances, and keeping more to his opinions than to his interests; requiring nothing of men, and not wishing to be under any obligation to them; yielding no more to their prejudices than to their will, and preserving his own as free as his reason; disputing about religion without licentiousness; loving neither impiety nor fanaticism, but disliking precise people more than bold spirits," &c. &c. From this specimen, the limitations he would appoint to this portrait may easily be discovered.

The letters of La Montaigne appeared soon after; but this work, far less eloquent, and full of envious discussions on the magistrates and clergy of Geneva, irritated the Protestant ministers without effecting a reconciliation with the clergy of the Romish church. Rousseau had solemnly abjured the latter religion in 1753, and, what is somewhat strange, had then resolved to live in France, a Catholic country. The Protestant clergy were not fully reconciled by this change; and the protection of the king of Prussia, to whom the principality of Neuchâtel belonged, was not sufficient to rescue him from that obloquy which the minister of Moutiers-Travers, the village to which he had retired, had excited against him. He preached against Rousseau, and his sermons produced an uproar among the people. On the night between the 6th and 7th September 1765, some fanatics, drove on by wine and the declamations of their minister, threw some stones at the windows of the Genevan philosopher, who fearing new insults, in vain sought an asylum in the canton of Berne. As this Canton was connected with the republic of Geneva, they did not think proper to allow him to remain in their city, being proscribed by that republic. Neither his broken state of health, nor the approach of winter, could soften the hearts of these obdurate Spartans. In vain, to prevent them from the fear they had of the spreading of his opinions, did he beseech them to shut him up in prison till the spring; for even this favour was denied him. Obligated to set out on a journey, in the beginning of a very inclement season, he reached Strasbourg in a very destitute situation. He received from Marshal de Contades, who then commanded in that place, every accommodation which could be expected from generosity, humanity, and compassion. He waited there till the weather was milder, when he went to Paris, where Mr Hume then was, who determined on taking him with him to England. After having made some stay in Paris, Rousseau actually set out for London in 1766. Hume, much affected with his situation and his misfortunes, procured for him a very agreeable settlement in the country. Our Genevan philosopher was not, however, long satisfied with this new place. He did not make such an impression on the minds of the English as he had done on the French. His free disposition, his obdurate and melancholy temper, was deemed no singularity in England. He was there looked upon as an ordinary man, and the periodical prints were filled with satires against him. In particular, they published a forged letter from the king

of Prussia, holding up to ridicule the principles and conduct of this new Diogenes. Rousseau imagined there was a plot between Hume and some philosophers in France to destroy his glory and repose. He sent a letter to him, filled with the most abusive expressions, and reproaching him for his conduct towards him. From this time he looked upon Hume as a wicked and perfidious person, who had brought him to England with no other view than to expose him to public ridicule; which foolish and chimerical idea was nourished by self-love and a restless disposition. He imagined that the English philosopher, amidst all his kindnesses, had something disagreeable in the manner of expressing them. The bad health of Rousseau, a strong and melancholy imagination, a too nice sensibility, a jealous disposition, joined with philosophic vanity, cherished by the false informations of his governors, who possessed an uncommon power over him; all these taken together, might tend to prepossess him with unfavourable sentiments of some innocent freedoms his benefactor might have taken with him, and might render him ungrateful, which he thought himself incapable of becoming. Meanwhile, these false conjectures and probabilities ought never to have had the weight with an honest mind to withdraw itself from its friend and benefactor. Proofs are always necessary in cases of this kind; and that which Rousseau had was by no means a certain demonstration. The Genevan philosopher, however, certainly returned to France. In passing through Amiens, he met with M. Gresset, who interrogated him about his misfortunes and the controversies he had been engaged in. He only answered, "You have got the art of making a parrot speak; but you are not yet possessed of the secret of making a bear speak." In the mean time, the magistrates of this city wished to confer on him some mark of their esteem, which he absolutely refused. His disordered imagination viewed these flattering civilities as nothing else than insults, such as were lavished on Sancho in the island of Barataria. He thought one part of the people looked upon him as like Lazarille of Tormes, who, being fixed to the bottom of a tub, with only his head out of the water, was carried from one town to another to amuse the vulgar. But these wrong and whimsical ideas did not prevent him from aspiring after a residence in Paris, where, without doubt, he was more looked on as a spectacle than in any other place whatever. On the 1st July 1770, Rousseau appeared, for the first time, at the regency coffee-house, dressed in ordinary clothing, having for some time previous to this wore an Armenian habit. He was loaded with praises by the surrounding multitude. "It is somewhat singular (says M. Sennebier) to see a man so haughty as he returning to the very place from whence he had been banished so often. Nor is it one of the smallest inconsistencies of this extraordinary character, that he preferred a retreat in that place of which he had spoken so much ill." It is as singular that a person under sentence of imprisonment should wish to live in so public a manner in the very place where his sentence was in force against him. His friends procured for him, however, liberty of staying, on condition that he should neither write on religion nor politics: he kept his word; for he wrote none at all. He was contented with living in a calm philosophical manner, giving himself to the society of a few tried friends, shunning the

Rousseau.

Rousseau. company of the great, appearing to have given up all his whimsies, and affecting neither the character of a philosopher nor a *bel esprit*. He died of an apoplexy at Ermenonville, belonging to the marquis de Girardin, about ten leagues from Paris, July 2. 1778, aged 66 years. This nobleman has erected to his memory a very plain monument, in a grove of poplars, which constitutes part of his beautiful gardens. On the tomb are inscribed the following epitaphs:

*Ici repose
L'Homme de la Nature
Et de la Verite!*

Vitam impendere Vero.*

Hic jacent Offa J. J. Rousseau.

* His motto.

The curious who go to see this tomb likewise see the cloak which the Genevan philosopher wore. Above the door is inscribed the following sentence, which might afford matter for a whole book: "He is truly free, who, to accomplish his pleasure, has no need of the assistance of a second person." Rousseau, during his stay in the environs of Lyons, married Mademoiselle le Vasseur, his governess, a woman who, without either beauty or talents, had gained over him a great ascendancy. She waited on him in health and in sickness: But as if she had been jealous of possessing him alone, she drove from his mind, by the most perfidious insinuations, all those who came to entertain him; and when Rousseau did not dismiss them, she prevented their return by invariably refusing them admittance. By these means she the more easily led her husband into inconsistencies of conduct, which the originality of his character as well as of his opinions so much contributed to assist. Nature had perhaps but given him the embryo of his character, and art had probably united to make it more singular. He did not incline to associate with any person; and as this method of thinking and living was uncommon, it procured him a name, and he displayed a kind of fantasticalness in his behaviour and his writings. Like Diogenes of old, he united simplicity of manners with all the pride of genius; and a large stock of indolence, with an extreme sensibility, served to render his character still more uncommon. "An indolent mind (says he), terrified at every application, a warm, bilious, and irritable temperament, sensible also in a high degree to every thing that can affect it, appear not possible to be united in the same person: and yet these two contrarieties compose the chief of mine. An active life has no charms for me. I would an hundred times rather consent to be idle than to do any thing against my will; and I have an hundred times thought that I would live not amiss in the Bastille, provided I had nothing to do but just continue there. In my younger days I made several attempts to get in there; but as they were only with the view of procuring a refuge and rest in my old age, and, like the exertions of an indolent person, only by fits and starts, they were never attended with the smallest success. When misfortunes came, they afforded me a pretext of giving myself up to my ruling passion." He often exaggerated his misfortunes to himself as well as to others. He endeavoured particularly to render interesting by his description his misfortunes and his poverty, although the former were far less than he imagined, and notwith-

standing he had certain resources against the latter. In other respects he was charitable, generous, sober, just, contenting himself with what was purely necessary, and refusing the means which might have procured him wealth and offices. He cannot, like many other sophists, be accused of having often repeated with a studied emphasis the word *Virtue*, without inspiring the sentiment. When he is speaking of the duties of mankind, of the principles necessary to our happiness, of the duty we owe to ourselves and to our equals, it is with a copiousness, a charm, and an impetuosity, that could only proceed from the heart. He said one day to M. de Buffon, "You have asserted and proved before J. J. Rousseau that mothers ought to suckle their children." "Yes (says this great naturalist), we have all said so; but M. Rousseau alone forbids it, and causes himself to be obeyed." Another academician said, "that the virtues of Voltaire were without heart, and those of Rousseau without head." He was acquainted at an early age with the works of the Greek and Roman authors; and the republican virtues there held forth to view, the rigorous austerity of Cato, Brutus, &c. carried him beyond the limits of a simple estimation of them. Influenced by his imagination, he admired every thing in the ancients, and saw nothing in his contemporaries but enervated minds and degenerated bodies.

His ideas about politics were almost as eccentric as his paradoxes about religion. Some reckon his *Social Compact*, which Voltaire calls the *Unsocial Compact*, the greatest effort his genius produced. Others find it full of contradictions, errors, and cynical passages, obscure, ill-arranged, and by no means worthy of his shining pen. There are several other small pieces wrote by him, to be found in a collection of his works published in 25 vols 8vo and 12mo, to which there is appended a very insignificant supplement in 6 vols.

The most useful and most important truths in this collection are picked out in his *Thoughts*; in which the confident sophist and the impious author disappear, and nothing is offered to the reader but the eloquent writer and the contemplative moralist. There were found in his port-folio his *Confessions*, in twelve books; the first six of which were published. "In the preface to these memoirs, which abound with characters well drawn, and written with warmth, with energy, and sometimes with elegance, he declares (says M. Palissot), like a peevish misanthrope, who boldly introduces himself on the ruins of the world, to declare to mankind, whom he supposes assembled upon these ruins, that in that innumerable multitude, none could dare to say, *I am better than that man*. This affectation of seeing himself alone in the universe, and of continually directing every thing to himself, may appear to some morose minds a fanaticism of pride, of which we have no examples, at least since the time of Cardan." But this is not the only blame which may be attached to the author of the *Confessions*. With uneasiness we see him, under the pretext of sincerity, dishonouring the character of his benefactress Lady Warren. There are innuendos no less offensive against obscure and celebrated characters, which ought entirely or partly to have been suppressed. A lady of wit said, that Rousseau would have been held in higher estimation for virtue, "had he died without his confession." The same opinion is entertained by M. Senne-

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bier, author of the Literary History of Geneva: "His confessions (says he) appear to me to be a very dangerous book, and paint Rousseau in such colours as we would never have ventured to apply to him. The excellent analyses which we meet with of some sentiments, and the delicate anatomy which he makes of some actions, are not sufficient to counterbalance the detestable matter which is found in them, and the unceasing obloquies everywhere to be met with." It is certain, that if Rousseau has given a faithful delineation of some persons, he has viewed others through a cloud, which formed in his mind perpetual suspicions. He imagined he thought justly and spoke truly; but the simplest thing in nature, says M. Servant, if distilled through his violent and suspicious head, might become poison. Rousseau, in what he says of himself, makes such acknowledgments as certainly prove that there were better men than he, at least if we may judge him from the first six books of his memoirs, where nothing appears but his vices. They ought not perhaps to be separated from the six last books, where he speaks of the virtues which make reparation for them; or rather the work ought not to have been published at all, if it be true (which there can be little doubt of) that in his confessions he injured the public manners, both by the baseness of the vices he disclosed, and by the manner in which he united them with the virtues. The other pieces which we find in this new edition of his works are, 1. *The Reveries of a Solitary Wanderer*, being a journal of the latter part of his life. In this he confesses, that he liked better to send his children into hospitals destined for orphans, than to take upon himself the charge of their maintenance and education; and endeavours to palliate this error, which nothing can exculpate. 2. *Considerations upon the Government of Poland*. 3. *The Adventures of Lord Edward*, a novel, being a kind of supplement to the new *Heloisa*. 4. *Various Memoirs and Fugitive Pieces*, with a great number of letters, some of which are very long, and written with too much study, but containing some eloquent passages and some deep thought. 5. *Emilia and Sophia*. 6. *The Levite of Ephraim*, a poem in prose, in 4 cantos; written in a truly ancient style of simplicity. 7. *Letters to Sara*. 8. *An Opera and a Comedy*. 9. *Translations of the first book of Tacitus's History of the Episode of Olinda and Sophronia, taken from Tasso*. &c. &c. Like all the other writings of Rousseau, we find in these posthumous pieces many admirable and some useful things; but they also abound with contradictions, paradoxes, and ideas very unfavourable to religion. In his letters especially we see a man chagrined at misfortunes, which he never attributes to himself, suspicious of every body about him, calling and believing himself a lamb in the midst of wolves; in one word, as like Pascal in the strength of his genius, as in his fancy of always seeing a precipice about him. This is the reflection of M. Servant, who knew him, assisted him, and caressed him during his retreat at Gr noble in 1768. This magistrate having been very attentive in observing his character, ought the rather to be believed, as he inspected it without either malice, envy, or resentment, and only from the concern he had for this philosopher, whom he loved and admired.

ROUT, in law, is applied to an assembly of persons

going forcibly to commit some unlawful act, whether they execute it or not. See RIOR.

ROUTE, a public road, highway, or course, especially that which military forces take. This word is also used for the defeat and flight of an army.

ROWE (Nicholas), descended of an ancient family in Devonshire, was born in 1673. He acquired a complete taste of the classic authors under the famous Dr Busby in Westminster school; but poetry was his early and darling study. His father, who was a lawyer, and designed him for his own profession, entered him a student in the Middle Temple. He made remarkable advances in the study of the law; but the love of the belles lettres, and of poetry in particular, stopt him in his career. His first tragedy, the *Ambitious Stepmother*, meeting with universal applause, he laid aside all thoughts of rising by the law. He afterward composed several tragedies; but that which he valued himself most upon, was his *Tameline*. The others are, the *Fair Penitent Ulysses*, the *Royal Convert*, *Jane Shore*, and *Lady Jane Grey*. He also wrote a poem called the *Biter*, and several poems upon different subjects, which have been published under the title of *Miscellaneous Works*, in one volume, as his dramatic works have been in two. Rowe is chiefly to be considered (Dr Johnson observes) in the light of a tragic-writer and a translator. In his attempt at comedy, he failed so ignominiously, that his *Biter* is not inserted in his works; and his occasional poems and short compositions are rarely worthy of either praise or censure, for they seem the casual sports of a mind seeking rather to amuse its leisure than to exercise its powers. In the construction of his dramas there is not much art; he is not a nice observer of the unities. He extends time, and varies place, as his convenience requires. To vary the place is not (in the opinion of the learned critic from whom these observations are borrowed) any violation of nature, if the change be made between the acts; for it is no less easy for the spectator to suppose himself at Athens in the second act, than at Thebes in the first; but to change the scene, as is done by Rowe in the middle of an act, is to add more acts to the play, since an act is so much of the business as is transacted without interruption. Rowe, by this licence, easily extricates himself from difficulties; as in *Lady Jane Gray*, when we have been terrified with all the dreadful pomp of public execution, and are wondering how the heroine or the poet will proceed, no sooner has Jane pronounced some prophetic rhimes, than—pass and be gone—the scene closes, and Pembroke and Gardiner are turned out upon the stage. I know not (says Dr Johnson) that there can be found in his plays any deep search into nature, any accurate discriminations of kindred qualities, or nice display of passion in its progress; all is general and undefined. Nor does he much interest or affect the auditor, except in *Jane Shore*, who is always seen and heard with pity. *Alicia* is a character of empty noise, with no resemblance to real sorrow or to natural madness. Whence then has Rowe his reputation? From the reasonableness and propriety of some of his scenes, from the elegance of his diction, and the suavity of his verse. He seldom moves either pity or terror, but he often elevates the sentiment; he seldom pierces the breast, but he always delights the ear, and often improves the

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understanding. Being a great admirer of Shakespeare, he gave the public an edition of his plays; to which he prefixed an account of that great man's life. But the most considerable of Mr Rowe's performances was a translation of Lucan's *Pharsalia*, which he just lived to finish, but not to publish; for it did not appear in print till 1728, ten years after his death.

Meanwhile, the love of poetry and books did not make him unfit for business; for nobody applied closer to it when occasion required. The Duke of Queensberry, when secretary of state, made him secretary for public affairs. After the Duke's death, all avenues were stopped to his preferment; and during the rest of Queen Anne's reign he passed his time with the Muses and his books. A story, indeed, is told of him, which shows that he had some acquaintance with her ministers. It is said, that he went one day to pay his court to the lord treasurer Oxford, who asked him, "If he understood Spanish well?" He answered, "No:" but thinking that his Lordship might intend to send him into Spain on some honourable commission, he presently added, "that he did not doubt but he could shortly be able both to understand and to speak it." The earl approving what he said, Rowe took his leave; and, retiring a few weeks to learn the language, waited again on the Earl to acquaint him with it. His Lordship asking him, "If he was sure he understood it thoroughly?" and Rowe affirming that he did, "How happy are you, Mr Rowe," said the Earl, "that you can have the pleasure of reading and understanding the History of Don Quixote in the original!" On the accession of George I. he was made poet laureat, and one of the land surveyors of the customs in the port of London. The prince of Wales conferred on him the clerkship of his council; and the Lord Chancellor Parker made him his secretary for the presentations. He did not enjoy these promotions long; for he died Dec. 6. 1718, in his 45th year.

Mr Rowe was twice married, had a son by his first wife, and a daughter by his second. He was a handsome, genteel man; and his mind was as amiable as his person. He lived beloved; and at his death had the honour to be lamented by Mr Pope, in an epitaph which is printed in Pope's works, although it was not affixed on Mr Rowe's monument in Westminster-abbey, where he was interred in the poet's corner, opposite to Chaucer.

ROWE (Elizabth), an English lady, eminent for her excellent writings both in prose and verse, born at Ilchester in Somersetshire in 1647, was the daughter of worthy parents, Mr Walter Singer and Mrs Elizabeth Portnel. She received the first serious impressions of religion as soon as she was capable of it. There being a great affinity between painting and poetry, this lady, who had a vein for the one, naturally had a taste for the other. She was also very fond of music; chiefly of the grave and solemn kind, as best suited to the grandeur of her sentiments and the sublimity of her devotion. But poetry was her favourite employment, her distinguishing excellence. So prevalent was her genius this way, that her prose is all poetical. In 1696, a collection of her poems was published at the desire of two friends. Her paraphrase on the xxxviiith chapter of Job was written at the request of bishop Ken. She had no other tutor for the French and Italian languages

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than the honourable Mr Thynne, who willingly took the task upon himself. Her shining merit, with the charms of her person and conversation, had procured her a great many admirers. Among others, it is said, the famous Mr Prior made his addresses to her. But Mr Thomas Rowe was to be the happy man. This gentleman was honourably descended: and his superior genius, and insatiable thirst after knowledge, were conspicuous in his earliest years. He had formed a design to compile the lives of all the illustrious persons in antiquity omitted by Plutarch; which, indeed, he partly executed. Eight lives were published since his decease. They were translated into French by the abbé Belleguer in 1734. He spoke with ease and fluency; had a frank and benevolent temper, an inexhaustible fund of wit, and a communicative disposition. Such was the man who, charmed with the person, character, and writings, of our authoress, married her in 1710, and made it his study to repay the felicity with which she crowned his life. Too intense an application to study, beyond what the delicacy of his frame would bear, broke his health, and threw him into a consumption, which put a period to his valuable life in May 1715, when he was but just past the 28th year of his age. Mrs Rowe wrote a beautiful elegy on his death; and continued to the last moments of her life to express the highest veneration and affection for his memory. As soon after his decease as her affairs would permit, she indulged her inclination for solitude, by retiring to Frome, in Somersetshire, in the neighbourhood of which place the greatest part of her estate lay. In this recess it was that she composed the most celebrated of her works, *Friendship in Death*, and the *Letters Moral and Entertaining*. In 1736, she published, the *History of Joseph*; a poem which she had written in her younger years. She did not long survive this publication; for she died of an apoplexy, as was supposed, Feb. 20. 1736-7. In her cabinet were found letters to several of her friends, which she had ordered to be delivered immediately after her decease. The Rev. Dr Isaac Watts, agreeably to her request, revised and published her devotions in 1737, under the title of *Devout Exercises of the Heart in Meditation and Soliloquy, Praise and Prayer*; and, in 1739, her *Miscellaneous Works*, in prose and verse, were published in 2 vols 8vo, with an account of her life and writings prefixed.

As to her person, she was not a regular beauty, yet possessed a large share of the charms of her sex. She was of a moderate stature, her hair of a fine colour, her eyes of a darkish grey inclining to blue, and full of fire. Her complexion was very fair, and a natural blush glowed in her cheeks. She spoke gracefully; her voice was exceedingly sweet and harmonious; and she had a softness in her aspect which inspired love, yet not without some mixture of that awe and veneration which distinguished sense and virtue, apparent in the countenance, are wont to create.

ROWEL, among farriers, a kind of issue answering to what in surgery is called a *seton*. See FARRIERY, sect. v.

ROWLEY, a monk who is said to have flourished at Bristol in the 15th century, and to have been an author voluminous and elegant. Of the poems attributed to him, and published some time ago, various

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Rowley, opinions have been entertained, which we have noticed elsewhere. They seem now to be almost forgotten. See CHATTERTON.

ROWLEY (William), who stands in the third class of dramatic writers, lived in the reign of king Charles I. and received his education at the university of Cambridge; but whether he took any degree there, is not evident; there being but few particulars preserved in regard to him more than his close intimacy and connection with all the principal wits and poetical geniuses of that age, by whom he was well beloved, and with some of whom he joined in their writings. Wood styles him "the ornament, for wit and ingenuity, of Pembroke-hall in Cambridge." In a word, he was a very great benefactor to the English stage, having, exclusive of his aid lent to Middleton, Day, Heywood, Webster, &c. left us five plays of his own composing, and one in which even the immortal Shakespeare afforded him some assistance.

ROXBURGH-SHIRE, or TEVIOTDALE, a county of Scotland, deriving its name from the town of Roxburgh, which is now destroyed, and the river Teviot; that runs through the shire into the Tweed, is divided into the three districts of *Teviotdale*, *Liddisdale*, and *Esksdale*, or *Eusdale*, so called from their respective rivers, Teviot, Liddel, and Esk. It is bounded on the east and south-east by Northumberland and Cumberland, on the south and south-west by Annandale, on the west by Tweeddale, on the north by the Merse and Lauderdale; extending about 30 miles from east to west, and about 15 in breadth from the border of England to the Blue Cairn in Lauder-moor. The shire exhibits a rough irregular appearance of hills, moor, and mountains, interspersed, however, with narrow valleys, and watered with delightful streams. Though the face of the country is bare of woods, the valleys yield plenty of corn, and the hills abound with pasture for sheep and black cattle. The principal mountains of this country are known by the name of *Cockraw*: from whence a range of very high hills runs westward, dividing Scotland from England. On the confines of this shire are the debateable lands; the property of which was formerly disputed by the Scots and English borderers, but adjudged to the Scots at the union of the crowns.—Roxburghshire yields plenty of lime and freestone, which in former times was freely used by the inhabitants in building castles to defend them from the invasions of their English neighbours. The most distinguished families in this county are the Scots and Kers, who raised themselves to wealth and honours by their bravery and success in a sort of predatory war with their enemies of South Britain. The shire is very populous; and the people are stout and valiant. They were formerly inured to military discipline and all the dangers of war, by living on dry marches contiguous to those of England; being so numerous and alert, that this and the neighbouring shire of Berwick could in 24 hours produce 10,000 men on horseback, well armed and accoutred. In the shire of Roxburgh we still meet with a great number of old castles and seats belonging to private gentlemen, whose ancestors signalized themselves in this manner; and we find the remains of old encampments, and a Roman military way, vulgarly called the *caufeway*, running from Haunum to the Tweed. The principal town, called *Roxburgh*, giving the title of

duke to the chief of the Kers, was anciently a royal borough, containing divers parishes, large and flourishing, defended by a strong citadel, which was often alternately reduced by the English and Scotch adventurers. It was in besieging this castle that James II. of Scotland lost his life by the bursting of a cannon. In consequence of the almost continual wars between the two nations, this fortress was razed, the town ruined, and its royalty translated to Jedburgh, which is now a royal borough, situated between the Tefy and Jed.

ROXENT-CAPE, or *Rock of Lisbon*, a mountain and remarkable promontory in Portugal, situated in the Atlantic ocean, at the north entrance of the Tagus, 22 miles north of Lisbon.

ROYAL, something belonging to a king: thus we say, royal family, royal assent, royal exchange, &c.

Royal Family. The first and most considerable branch of the king's royal family, regarded by the laws of England, is the queen.

1. The queen of England is either queen *regent*, queen *consort*, or queen *dowager*. The queen *regent*, *regnant*, or *sovereign*, is she who holds the crown in her own right; as the first (and perhaps the second) queen Mary, queen Elizabeth, and queen Anne; and such a one has the same powers, prerogatives, rights, dignities, and duties, as if she had been a king. This is expressly declared by statute 1 Mar. I. st. 3. c. 1. But the queen *consort* is the wife of the reigning king; and she by virtue of her marriage is participant of divers prerogatives above other women.

And, first, she is a public person, exempt and distinct from the king; and not, like other married women, so closely connected as to have lost all legal or separate existence so long as the marriage continues. For the queen is of ability to purchase lands and to convey them, to make leases, to grant copyholds, and do other acts of ownership, without the concurrence of her lord; which no other married woman can do: a privilege as old as the Saxon era. She is also capable of taking a grant from the king, which no other wife is from her husband; and in this particular she agrees with the *augusta* or *piissima regina conjux divi imperatoris* of the Roman laws; who, according to Justinian, was equally capable of making a grant to, and receiving one from, the emperor. The queen of England hath separate courts and officers distinct from the king's, not only in matters of ceremony, but even of law; and her attorney and solicitor general are entitled to a place within the bar of his majesty's courts, together with the king's counsel. She may likewise sue and be sued alone, without joining her husband. She may also have a separate property in goods as well as lands, and has a right to dispose of them by will. In short, she is in all legal proceedings looked upon as a feme sole, and not as a feme covert; as a single, not as a married woman. For which the reason given by Sir Edward Coke is this: because the wisdom of the common law would not have the king (whose continual care and study is for the public, and *circa ardua regni*) to be troubled and disquieted on account of his wife's domestic affairs; and therefore it vests in the queen a power of transacting her own concerns, without the intervention of the king, as if she was an unmarried woman.

The queen hath also many exemptions, and minute prerogatives. For instance: she pays no toll; nor is she

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the liable to any amercement in any court. But in general, unless where the law has expressly declared her exempted, she is upon the same footing with other subjects; being to all intents and purposes the king's subject, and not his equal: in like manner as in the imperial law, *Augustus legibus solutus non est*.

The queen hath also some pecuniary advantages, which form her a distinct revenue: as, in the first place, she is intitled to an ancient perquisite called *queen-gold*, or *aurum regine*; which is a royal revenue belonging to every queen-consort during her marriage with the king, and due from every person who hath made a voluntary offering or fine to the king, amounting to 10 merks or upwards, for and in consideration of any privileges, grants, licences, pardons, or other matter of royal favour conferred upon him by the king: and it is due in the proportion to one-tenth part more, over and above the entire offering or fine made to the king, and becomes an actual debt of record to the queen's majesty by the mere recording of the fine. As, if 100 merks of silver be given to the king for liberty to take in mortmain, or to have a fair, market, park, chase, or free-warren; there the queen is intitled to 10 merks in silver, or (what was formerly an equivalent denomination) to one merk in gold, by the name of *queen-gold*, or *aurum regine*. But no such payment is due for any aids or subsidies granted to the king in parliament or convocation; or for fines imposed by courts on offenders against their will; nor for voluntary presents to the king, without any consideration moving from him to the subject; nor for any sale or contract whereby the present revenues or possessions of the crown are granted away or diminished.

The original revenue of our ancient queens, before and soon after the conquest, seems to have consisted in certain reservations or rents out of the demesne lands of the crown, which were expressly appropriated to her majesty, distinct from the king. It is frequent in domesday book, after specifying the rent due to the crown, to add likewise the quantity of gold or other renders reserved to the queen. These were frequently appropriated to particular purposes; to buy wood for her majesty's use, to purchase oil for lamps, or to furnish her attire from head to foot, which was frequently very costly, as one single robe in the fifth year of Henry II. stood the city of London in upwards of 80 pounds: A practice somewhat similar to that of the eastern countries, where whole cities and provinces were specifically assigned to purchase particular parts of the queen's apparel. And for a farther addition to her income, this duty of queen-gold is supposed to have been originally granted; those matters of grace and favour, out of which it arose, being frequently obtained from the crown by the powerful intercession of the queen. There are traces of its payment, though obscure ones, in the book of domesday, and in the great pipe-roll of Henry I. In the reign of Henry II. the manner of collecting it appears to have been well understood; and it forms a distinct head in the ancient dialogue of the exchequer written in the time of that prince, and usually attributed to Gervase of Tilbury. From that time downwards, it was regularly claimed and enjoyed by all the queen-consorts of England till the death of Henry VIII.; though after the accession of the Tudor family, the collecting of it seems to have

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been much neglected: and there being no queen consort afterwards till the accession of James I. a period of near 60 years, its very nature and quantity then became a matter of doubt; and being referred by the king to the chief justices and chief baron, their report of it was so very unfavourable, that his consort queen Anne, though she claimed it, yet never thought proper to exact it. In 1635, 11 Car. I. a time fertile of expedients for raising money upon dormant precedents in our old records (of which ship-money was a fatal instance), the king, at the petition of his queen Henrietta Maria, issued out his writ for levying it; but afterwards purchased it of his consort at the price of 10,000 pounds; finding it, perhaps, too trifling and troublesome to levy. And when afterwards, at the Restoration, by the abolition of military tenures, and the fines that were consequent upon them, the little that legally remained of this revenue was reduced to almost nothing at all; in vain did Mr Prynne, by a treatise that does honour to his abilities as a painful and judicious antiquarian, endeavour to excite queen Catherine to revive this antiquated claim.

Another ancient perquisite belonging to the queen consort, mentioned by all our old writers, and therefore only worthy notice, is this: that on the taking a whale on the coasts, which is a royal fish, it shall be divided between the king and queen; the head only being the king's property, and the tail of it the queen's. *De Jurgione observetur, quod rex illum habeat integrum: de balena vero sufficit, si rex habeat caput, et regina caudam*. The reason of this whimsical division, as assigned by our ancient records, was, to furnish the queen's wardrobe with whale-bone.

But farther: though the queen is in all respects a subject, yet, in point of the security of her life and person, she is put upon the same footing with the king. It is equally treason (by the statute 25 Edward III.) to imagine or compass the death of our lady the king's companion, as of the king himself; and to violate or defile the queen consort, amounts to the same high crime; as well in the person committing the fact, as in the queen herself if consenting. A law of Henry VIII. made it treason also for any woman who was not a virgin, to marry the king without informing him thereof: but this law was soon after repealed; it trespassing too strongly, as well on natural justice as female modesty. If however the queen be accused of any species of treason, she shall (whether consort or dowager) be tried by the peers of parliament, as queen Ann Boleyn was in 28 Hen. VIII.

The husband of a queen regnant, as prince George of Denmark was to queen Anne, is her subject; and may be guilty of high treason against her: but, in the instance of conjugal fidelity, he is not subjected to the same penal restrictions. For which the reason seems to be, that if a queen consort is unfaithful to the royal bed, this may debase or bastardize the heirs to the crown; but no such danger can be consequent on the infidelity of the husband to a queen regnant.

2. A queen *dowager* is the widow of the king, and as such enjoys most of the privileges belonging to her as queen consort. But it is not high treason to conspire her death, or to violate her chastity; for the same reason as was before alleged, because the succession to the crown is not thereby endangered. Yet still, *pro*

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dignitate regali, no man can marry a queen-dowager without special licence from the king, on pain of forfeiting his lands and goods. "This Sir Edward Coke tells us, was enacted in parliament in 6 Henry VI. though the statute be not in print. But she, though an alien born, shall still be entitled to dower after the king's demise, which no other alien is. A queen-dowager when married again to a subject, doth not lose her regal dignity, as peeresses-dowager do when they marry commoners. For Katharine, queen dowager of Henry V. though she married a private gentleman, Owen ap Meredith ap Theodore, commonly called *Owen Tudor*; yet, by the name of *Katharine queen of England*, maintained an action against the bishop of Carlisle. And so the dowager of Navarre marrying with Edmond the brother of king Edward I. maintained an action of dower by the name of *queen of Navarre*.

3. The prince of Wales, or heir apparent to the crown, and also his royal consort, and the princess royal, or eldest daughter of the king, are likewise peculiarly regarded by the laws. For, by statute 25 Edw. III. to compass or conspire the death of the former, or to violate the chastity of either of the latter, are as much high treason as to conspire the death of the king, or violate the chastity of the queen. And this upon the same reason as was before given; because the prince of Wales is next in succession to the crown, and to violate his wife might taint the blood-royal with bastardy; and the eldest daughter of the king is also alone inheritable to the crown on failure of issue male, and therefore more respected by the laws than any of her younger sisters; inasmuch that upon this, united with other (feodal) principles, while our military tenures were in force, the king might levy an aid for marrying his eldest daughter, and her only. The heir apparent to the crown is usually made prince of Wales and earl of Chester, by special creation and investiture; but being the king's eldest son, he is by inheritance duke of Cornwall, without any new creation.

4. The rest of the royal family may be considered in two different lights, according to the different senses in which the term *royal family* is used. The larger sense includes all those who are by any possibility inheritable to the crown. Such, before the revolution, were all the descendants of William the Conqueror; who had branched into an amazing extent by intermarriages with the ancient nobility. Since the revolution and act of settlement, it means the Protestant issue of the princess Sophia; now comparatively few in number, but which in process of time may possibly be as largely diffused. The more confined sense includes only those who are in a certain degree of propinquity to the reigning prince, and to whom therefore the law pays an extraordinary regard and respect; but after that degree is past, they fall into the rank of ordinary subjects, and are seldom considered any farther, unless called to the succession upon failure of the nearer lines. For though collateral consanguinity is regarded indefinitely with respect to inheritance or succession, yet it is and can only be regarded within some certain limits in any other respect, by the natural constitution of things and the dictates of positive law.

The younger sons and daughters of the king, and

other branches of the royal family, who are not in the immediate line of succession, were therefore little farther regarded by the ancient law, than to give them a certain degree of precedence before all peers and public officers as well ecclesiastical as temporal. This is done by the statute 31 Henry VIII. c. 10. which enacts, that no person except the king's children shall presume to sit or have place at the side of the cloth of estate in the parliament chamber; and that certain great officers therein named shall have precedence above all dukes, except only such as shall happen to be the king's son, brother, uncle, nephew (which Sir Edward Coke explains to signify grandson or *nepos*), or brother's or sister's son. But under the description of the king's children, his grandsons are held to be included, without having recourse to Sir Edward Coke's interpretation of *nephew*; and therefore when his late majesty king George II. created his grandson Edward, the second son of Frederick prince of Wales deceased, duke of York, and referred it to the house of lords to settle his place and precedence, they certified that he ought to have precedence next to the late duke of Cumberland, the then king's youngest son; and that he might have a seat on the left hand of the cloth of estate. But when, on the accession of his present majesty, these royal personages ceased to take place as the children, and ranked only as the brother and uncle of the king, they also left their seats on the side of the cloth of estate; so that when the duke of Gloucester, his majesty's second brother, took his seat in the house of peers, he was placed on the upper end of the earls' bench (on which the dukes usually sit) next to his royal highness the duke of York. And in 1717, upon a question referred to all the judges by king George I. it was resolved, by the opinion of ten against the other two, that the education and care of all the king's grandchildren, while minors, did belong of right to his majesty as king of this realm, even during their father's life. But they all agreed, that the care and approbation of their marriages, when grown up, belonged to the king their grandfather. And the judges have more recently concurred in opinion, that this care and approbation extend also to the presumptive heir of the crown; though to what other branches of the royal family the same did extend, they did not find precisely determined. The most frequent instances of the crown's interposition go no farther than nephews and nieces; but examples are not wanting of its reaching to more distant collaterals. And the statute 6 Henry VI. before mentioned, which prohibits the marriage of a queen-dowager without the consent of the king, assigns this reason for it: "because the disparagement of the queen shall give greater comfort and example to other ladies of estate, who are of the blood-royal, more lightly to disparage themselves." Therefore by the statute 28 Hen. VIII. c. 18. (repealed, among other statutes of treasons, by 1 Edw. VI. c. 12.) it was made high treason for any man to contract marriage with the king's children or reputed children, his sisters or aunts *ex parte paterna*, or the children of his brethren or sisters; being exactly the same degrees to which precedence is allowed by the statute 31 Hen. VIII. before-mentioned. And now, by statute 12 Geo. III. c. 11. no descendant of the body of king George II. (other than the issue of princesses married into foreign families) is capable of contracting

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traſting matrimony, without the previous conſent of the king ſignified under the great ſeal; and any marriage contracted without ſuch a conſent is void. Provided, that ſuch of the ſaid deſcendants as are not above 25, may after a twelvemonth's notice given to the king's privy council, contract and ſolemnize marriage without the conſent of the crown; unleſs both houſes of parliament ſhall, before the expiration of the ſaid year, expreſſly declare their diſapprobation of ſuch intended marriage. And all perſons ſolemnizing, aſſiſting, or being preſent at any ſuch prohibited marriage, ſhall incur the penalties of the ſtatute of *præmunire*.

Royal Oak, a fair ſpreading tree at Boſcobel, in the pariſh of Donnington in Staffordſhire, the boughs whereof were once covered with ivy; in the thick of which king Charles II. ſat in the day-time with colonel Careſſ, and in the night lodged in Boſcobel houſe: ſo that they are miſtaken who ſpeak of it as an old hollow oak; it being then a gay flouriſhing tree, ſurrounded with many more. The poor remains thereof are now fenced in with a handſome wall, with this inſcription in gold letters: *Feliſſimam arborem quam in aſylum potentiſſimi regis Caroli II. Deus op. max. per quem reges regnant, hic creſcere voluit, &c.*

Royal Society. See SOCIETY.

ROYALTIES, the rights of the king, otherwiſe called the *king's prerogative*, and the *regalia*. See *PREROGATIVE* and *REGALIA*.

ROYENIA, in botany: A genus of the digynia order, belonging to the decandria claſs of plants; and in the natural method ranking under the 18th order, *Bicornes*. The calyx is urceolated; the corolla monopetalous, with the limb revolved; the capſule is unilocular and quadrivalved.

ROYSTON, a town of Hertfordſhire in England, ſeated in E. Long. 0. 1. N. Lat. 52. 3. It is a large place, ſeated in a fertile vale full of inns, and the market is very conſiderable for corn. There was lately diſcovered, almoſt under the market-place, a ſubterraneous chapel of one Roſia, a Saxon Lady: it has ſeveral altars and images cut out of the chalky ſides, and is in form of a ſugar-loaf, having no entrance but at the top.

RUBBER (*India*). See CAOUTCHOUC.

RUBENS (Sir Peter Paul), the moſt eminent of the Flemiſh painters, was born in 1577; but whether at Antwerp or Cologne it is not eaſy to determine. His father, who was a counſellor in the ſenate of Antwerp, had been forced by the civil wars to ſeek refuge in Cologne, and during his reſidence there Rubens is commonly ſaid to have been born.

The genius of Rubens, which began to unfold itſelf in his earlieſt years, was cultivated with peculiar care, and embellished with every branch of claſſical and polite literature.

He ſoon diſcovered a ſtrong inclination for deſigning; and uſed to amuſe himſelf with that employment in his leiſure hours, while the reſt of his time was devoted to other ſtudies. His mother, perceiving the bias of her ſon, permitted him to attend the inſtructions of Tobias Verhaecht a painter of architecture and landſcape. He next became the pupil of Adam Van Oort, but he ſoon found that the abilities of this maſter were inſufficient to anſwer his elevated ideas. His ſultry temper too was

diſguſtful to Rubens, whoſe natural diſpoſition was moſt deſt and amiable.

Anxious to find an artiſt whoſe genius and diſpoſitions were congenial with his own, he became the diſciple of Octavio Van Veen, generally known by the name of Otho Venius, a painter of ſingular merit, and who was not only ſkilled in the principles of his art, but alſo diſtinguiſhed for learning and other accompliſhments. Between the maſter and ſcholar a remarkable ſimilarity appeared in temper and inclination; indeed, in the whole turn of their minds. It was this congeniality of ſentiments which animated Rubens with that ardent paſſion for the art of painting which at length determined him to purſue it as a profeſſion. From this time he gave up his whole mind to it; and ſo ſucceſſful were his exertions, that he ſoon equalled his maſter.

In order to arrive at that perfection which he already beheld in idea, it became requiſite to ſtudy the productions of the moſt eminent artiſts. For this purpoſe he travelled through Italy, viſiting the moſt valuable collections of paintings and antique ſtatues with which that country abounds.

Sandart, who was intimately acquainted with Rubens, informs us, that he was recommended in the moſt honourable manner to the duke of Mantua by the archduke Albert, who had witneſſed his talents in the finiſhing of ſome fine paintings deſigned for his own palace. At Mantua he was received by the duke with the moſt flattering marks of diſtinction, and had opportunities of improving himſelf which he did not neglect. Here he carefully ſtudied the works of Julio Romano. He next viſited Rome, where he had an opportunity of examining the productions of Raphael. The paintings of Titian and Paolo Veroneſe called him to Venice, where he accompliſhed himſelf in the art of colouring.

He continued in Italy ſeven years. At length receiving intelligence that his mother was taken ill, he haſtened to Antwerp; but his filial affection was not gratified with a ſight of her; ſhe died before his arrival. He married ſoon after; but his wife dying at the end of four years, he retired from Antwerp for ſome time, and endeavoured to ſoothe his melancholy by a journey to Holland. At Utrecht he viſited Hurlort, for whom he had a great value.

The fame of Rubens was now ſpread over Europe. He was invited by Mary of Medicis queen of Henry IV. of France to Paris, where he painted the galleries in the palace of Luxemburg. Theſe form a ſeries of paintings which delineate the hiſtory of Mary; and afford a convincing proof how well qualified he was to excel in allegorical and emblematical compoſitions. While at Paris he became acquainted with the duke of Buckingham, who was ſo taken with his great talents and accompliſhments, that he judged him well qualified to explain to Iſabella, the wife of Albert the archduke, the cauſe of the miſunderſtanding which had taken place between the courts of England and Spain. In this employment Rubens acquitted himſelf with ſuch propriety, that Iſabella appointed him envoy to the king of Spain, with a commiſſion to propoſe terms of peace, and to bring back the inſtructions of that monarch. Philip was no leſs captivated with Rubens: He conferred on him the honour of knighthood; and made him ſecretary to his privy council. Rubens returned:

Rubens. returned to Brussels, and thence passed over into England in 1630 with a commission from the Catholic king to negotiate a peace between the two crowns. He was successful in his negotiation, and a treaty was concluded. Charles I. who then filled the British throne, could not receive Rubens in a public character on account of his profession; nevertheless, he treated him with every mark of respect. Having engaged him to paint some of the apartments of Whitehall, he not only gave him a handsome sum of money, but, as an acknowledgment of his merit, created him a knight; and the duke of Buckingham, his friend and patron, purchased of him a collection of pictures, statues, medals, and antiques, with the sum of L. 10,000.

He returned to Spain, where he was magnificently honoured and rewarded for his services. He was created a gentleman of the king's bedchamber, and named secretary to the council of state in the Netherlands. Rubens, however, did not lay aside his profession. He returned to Antwerp, where he married a second wife called *Helena Forment*, who, being an eminent beauty, helped him much in the figures of his women. He died on 30th May 1640, in the 63d year of his age; leaving vast riches to his children. Albert his eldest son succeeded him in the office of secretary of state in Flanders.

As Rubens was possessed of all the ornaments and advantages that render a man worthy to be esteemed or courted, he was always treated as a person of consequence. His figure was noble, his manners engaging, and his conversation lively; his learning was universal. Though his favourite study must have occupied him much, yet he found time to read the works of the most celebrated authors, and especially the poets. He spoke several languages perfectly, and was an excellent statesman.

His house at Antwerp was enriched with every thing in the arts that was rare and valuable. It contained one spacious apartment, in imitation of the rotunda at Rome, adorned with a choice collection of pictures which he had purchased in Italy; part of which he sold to the duke of Buckingham.

His genius qualified him to excel equally in every thing that can enter into the composition of a picture. His invention was so fertile, that, if he had occasion to paint the same subject several times, his imagination always supplied him with something striking and new. The attitudes of his figures are natural and varied, the carriage of the head is peculiarly graceful, and his expression noble and animated.

He is by all allowed to have carried the art of colouring to its highest pitch; he understood so thoroughly the true principles of the *chiaro-scuro*, that he gave to his figures the utmost harmony, and a prominence resembling real life. His pencil is mellowed, his strokes bold and easy, his carnation glows with life, and his drapery is simple, but grand, broad, and hung with much skill.

The great excellence of Rubens appears in his grand compositions; for as they are to be viewed at a distance, he laid on a proper body of colours with uncommon boldness, and fixed all his tints in their proper places; so that he never impaired their lustre by breaking or torturing them; but touched them in such a manner as to give them a lasting force, beauty, and harmony.

It is generally allowed, that Rubens wanted correct-

ness in drawing and designing; some of his figures being heavy and too short, and the limbs in some parts, not being justly sketched in the outline. Though he had spent seven years in Italy in studying those antiques by which other celebrated artists had modelled their taste; though he had examined them with such minute attention as not only to perceive their beauties, but to be qualified to describe them in a Dissertation which he wrote on that subject: yet he seems never to have divested himself of that heavy style of painting, which, being peculiar to his native country, he had insensibly acquired. The astonishing rapidity too with which he painted, made him fall into inaccuracies, from which those works that he finished with care are entirely exempted.

Among his finished pieces may be mentioned the Crucifixion of Jesus Christ between the two Thieves, which was very lately to be seen at Antwerp; but of all his works the paintings in the palace of Luxemburg best display his genius and his style.

It is the observation of Algarotti, that he was more moderate in his movements than Tintoretto, and more soft in his *chiaro-scuro* than Carravaggio; but not so rich in his compositions, nor so light in his touches, as Paolo Veronese; in his carnations less true than Titian, and less delicate than Vandyck. Yet he contrived to give his colours the utmost transparency and harmony, notwithstanding the extraordinary deepness of them; and he had a strength and grandeur of style entirely his own.

RUBIA, Madder: A genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 47th order, *Stelatae*. The corolla is monopetalous and campanulated; and there are two monospermous berries. There are three species, of which the most remarkable is the *tinctorum*, or dyer's madder, so much used by the dyer's and callico-printers. This hath a perennial root and annual stalk: the root is composed of many long, thick, succulent fibres, almost as large as a man's little finger; these are joined at the top in a head like asparagus, and run very deep into the ground. From the upper part, or head of the root, come out many side-roots, which extend just under the surface of the ground to a great distance, whereby it propagates very fast; for these send up a great number of shoots, which, if carefully taken off in the spring soon after they are above ground, become so many plants. These roots are of a reddish colour, somewhat transparent; and have a yellowish pith in the middle, which is tough and of a bitterish taste. From this root arise many large four-cornered jointed stalks, which, in good land, will grow five or six feet long, and, if supported, sometimes seven or eight: they are armed with short herbaceous prickles; and at each joint are placed five or six spear-shaped leaves: their upper surfaces are smooth: but their midrib on the under side is armed with rough herbaceous spines, and the leaves sit close to the branches in whorls. From the joints of the stalk come out the branches, which sustain the flowers: they are placed by pairs opposite; each pair crossing the other: these have a few small leaves toward the bottom, which are by threes, and upwards by pairs opposite: the branches are terminated by loose branching spikes of yellow flowers, which are cut into four parts resembling stars. These appear in June, and are sometimes succeeded by seeds, which

**Rubens,
Rubia,**

which seldom ripen in England. For the manner of its cultivation and preparation for the use of dyers, see the article Madder.

Madder-root is used in medicine. The virtues attributed to it are those of a detergent and aperient; whence it has been usually ranked among the opening roots, and recommended in obstructions of the viscera, particularly of the kidneys, in coagulations of the blood from falls or bruises, in the jaundice, and beginning dropsies. It is an ingredient in the icteric decoction of the Edinburgh pharmacopœia.

It is observable, that this root, taken internally, tinges the urine of a deep red colour; and in the Philosophical Transactions we have an account of its producing a like effect upon the bones of animals who had it mixed with their food: all the bones, particularly the more solid ones, were said to be changed, both externally and internally, to a deep red; but neither the fleshy or cartilaginous parts suffered any alterations: some of these bones macerated in water for many weeks together, and afterwards steeped and boiled in spirit of wine, lost none of their colour, nor communicated any tinge to the liquors. This root, therefore, was concluded to be possessed of great subtilty of parts, and its medical virtues hence to deserve inquiry. The same trials, however, made by others, have not been found to produce the same effects as those above-mentioned.—Of late the root has come into great reputation as an emmenagogue.

RUBINISKA, one of the northern provinces of Russia, bounded by the province of Dwina on the north, by Syriane on the east, by Belozera on the south, and by the lake Onega on the west.

RUBRIC, in the canon law, signifies a title or article in certain ancient law-books; thus called because written, as the titles of the chapters in our ancient bibles are, in red letters.

RUBUS, the BRAMBLE, or *Raspberry bush*: A genus of the polygamia order, belonging to the icotandria class of plants; and in the natural order ranking under the 35th order, *Senticosæ*. The calyx is quinquefid, the petals five; the berry consisting of monospermous acini or pulpy grains. The principal species is the common raspberry, which, with its varieties, demands culture in every garden for their fruit; particularly the common red kind, white sort, and twice-bearing raspberry; all of which are great bearers: but for the general plantations, we choose principally the common red and the white kind, as being generally the greatest bearers of all; planting also a share of the twice-bearing sort, both as a curiosity and for the sake of its autumnal crops of fruit, which in favourable seasons ripen in tolerable perfection; observing to allow all the sorts some open exposure in the kitchen garden, though they will prosper in almost any situation.

The other species are considered as plants of variety, for hardy plantations in the shrubbery. Some of them are also very ornamental flowering plants; particularly the Virginian flowering raspberry, and the double-blossomed bramble, which have great merit as furniture for ornamental compartments; and the white-berried bramble, which is a great curiosity. All the other species and varieties serve to diversify large collections.

RUBY, a genus of precious stones of various colours; as, 1. Of a deep red colour inclining a little to purple; the *carbuncle* of Pliny. 2. The spinell, of the colour of a bright corn poppy flower. 3. The balais or pale red inclining to violet; supposed to be the mother of rubies. 4. The rubicell, of a reddish yellow. According to Cronstedt, the ruby crystallises into an octoedral form, as well as the diamond, from which it differs very little in hardness and weight, whence he concludes that they are both of the same nature; but some late experiments have shown that the diamond differs excessively from all other gems, in being diffusable by a strong fire, which the others resist. Tavernier and Dutens inform us, that in the East Indies all coloured gems are named *rubies*, without regard to what their colours may be; and that the particular colour is added to the name of each in order to distinguish them from one another. There are, however, some soft stones of this kind which they call *lacan*; and it is certain, that the hard and brilliant rubies named *oriental*, as well as the sapphires and topazes, are all the same, excepting only the circumstance of colour. Some are partly red and partly blue, yellow, and some quite colourless. The spinell rubies are about half the value of diamonds of the same weight; the balais is valued at 30 shillings per carat. Tavernier mentions 108 rubies in the throne of the great Mogul, from 100 to 200 carats, and of a round one almost $2\frac{1}{2}$ ounces: there is also mention made by other travellers of rubies exceeding 200 carats in weight. According to Dutens, a perfect ruby, if it weighs more than $3\frac{1}{2}$ carats, is of greater value than a diamond of the same weight. If it weighs one carat, it is worth 10 guineas; if two carats, 40 guineas; three carats, 150 guineas; if six carats, upwards of 1000 guineas.

According to the experiments of Bergman and Achar, the texture of the ruby is foliated like that of diamonds; it is fusible with borax in a strong and long continued heat, running into a transparent glass of a pale green colour: the same effect is produced by microcosmic salt; but with sedative salt, or mineral or vegetable alkali, the glass is opaque and differently coloured. From the experiments of M. d'Arcet, it appears that the ruby does not lose its colour in the greatest fire; but Henckel says, that, by means of a burning glass, he softened it in such a manner as to receive the impression of a seal of jasper. It becomes electric by being rubbed. Its specific gravity, according to Bergman, is from 3,180 to 4,240; but Briffon tells us that it is 4,283. The specific gravity of the spinell is 3,760, of the Brazilian ruby 3,531.

Rubies are met with in the Capelan mountains of Pegu in the East Indies; and at Caos, Ava, Bijnagar, Calicut, Cananor, Ceilan, and Brasil. They are found in the sands of rivers of a red colour, in an argillaceous earth of an hard texture and greenish colour: sometimes they adhere to red rocks. The spinell rubies are met with in Hungary, Silesia, Bohemia, and Brasil. The balais comes principally from Brasil, though some are also brought from the East Indies. The rubicell comes also from Brasil, but are said to lose their colour in the fire. A variety of this gem, but of a soft quality, is found in great plenty on the sea-shore near Ely in Fifeshire, Scotland. There is also a stone which

Ruby
||
Rudder.

which comes near to the ruby found near Portfey, Banffshire, and at Inverary, Argyleshire, Scotland. The *rubino di rocca* of the Italians is a true garnet of a deep red and violet, or of the amethyst colour. What is called ruby of arsenic or of sulphur is the realgar: the ruby of zinc is the red blend; and the ruby of silver is the red silver ore.

Rubies may be artificially made from Brazilian topazes of a smoky appearance, by giving them a gradual heat in a crucible filled with ashes, until it be red-hot.

Rock Ruby, the *amethystiontas* of the ancients, is found in Syria, Calcutta, Cananor, Cambaya, and Ethiopia. It is the most valued of all the species of garnets, and is frequently sold as a ruby under the name of *rubinus Russicum*. See GARNET and RUBY.

RUCTATION, a ventosity arising from indigestion, and discharging itself at the mouth with a very disagreeable noise.

RUDBECK (Olaus), a learned Swedish physician, born of an ancient and noble family in 1630. He became professor of medicine at Upsal, where he acquired great applause by his extensive knowledge; and died in 1702. His principal works are, 1. *Exercitatio anatomica, exhibens ductus novos hepaticos aquosos, & vasa glandularum ferosa*, in 4to. He there asserts his claim to the discovery of the lymphatic vessels, against the pretensions of Thomas Bartholin. 2. *Atlantica, sive Manheim, vera Japheti posterorum sedes ac patria*, 4 vols folio, is full of strange paradoxes supported with profound learning: he there endeavours to prove, that Sweden was the country whence all the ancient Pagan divinities and our first parents were derived; and that the Germans, English, French, Danes, Greeks, and Romans, with all other nations, originally came from thence.

RUDBECKIA, in botany: a genus of the polygamia frustanea order, belonging to the syngenesia class of plants; and in the natural method ranking under the 49th order, *Compositæ*. The receptacle is palaceous and conical; the pappus consists of a quadridentate margin; the calyx of a double series of scaly leaves.

RUDDER, in navigation, a piece of timber turning on hinges in the stern of the ship, and which, opposing sometimes one side in the water and sometimes another, turns or directs the vessel this way or that. See HELM.

In the seventh volume of the Transactions of the Society instituted at London for the Encouragement of Arts, Manufactures, and Commerce, there is explained a method of supplying the loss of a ship's rudder at sea. The invention, which is Captain Pakenham's of the royal navy, has been approved by Admiral Cornwallis, the commissioners of the admiralty, by the society in whose transactions the account of it was first published, and who presented to Captain Pakenham their gold medal, by the Trinity-house, by the managing owners of East India shipping, by the duke of Sudermania the present regent of Sweden, and by the society for the improvement of naval architecture. The substitute here recommended for a lost rudder, says the inventor, is formed of those materials without which no ship goes to sea, and its construction is simple and speedy. Captain Pakenham, however, did not give a particular ac-

count of his invention to the society whom he addressed, and to whom he sent a model of his invention, till such time as he had an opportunity of reducing the theory he had conceived to practice. On the 7th of July 1788, he made this trial with the Merlin of Newfoundland; and he declares that, during the different manœuvres of tacking and wearing, he could not discover the least variation between the operation of the machine and that of the ship's rudder: she was steered with the same ease by one man, and answered the helm in every situation fully as quick. Admiral Cornwallis certifies the same with respect to the Crown of 64 guns, which lost her rudder on the Kentish Knock, when with the substitute she was steered to Portsmouth with the utmost ease in a heavy gale, and, as the admiral asserts, it would have taken her to the East Indies.

The materials and construction are thus described in the Transactions. "Nº 1. a top-mast inverted; the fid-hole to ship the tiller in, and secured with hoops from the anchor stocks; the heel forming the head of the rudder. Nº 2. The inner half of a jibb-boom. Nº 3. The outer half of a jibb-boom. Nº 4. A fish: the whole of these materials well-bolted together:—in a merchantman her ruff-tree. Nº 5. A cap, with the square part cut out to fit the stern-post, and acting as a lower gudgeon, secured to the stern-post with hawfers, leading from the bolts of the cap, under the ship's bottom, into the hawse-holes, and hove well tort. Nº 6. A plank, or, if none on board the ships, gangboards. Nº 7. Anchor-stocks, made to fit the topmast as partners, secured to the deck, and supplying the place of the upper gudgeon, and in a merchant-ship the clamps of her windlafs. Nº 8. A stern-post. Nº 9. Hoops from the anchor stocks. Nº 10. Pigs of ballast, to sink the lower part. The head of the rudder to pass through as many decks as you wish."

On this the Captain makes the following remarks: "It might probably be supposed, that a difficulty would occur in bringing the jaws of the cap to embrace the stern-post; but this will at once be obviated, when it is remembered that the top-chains, or hawfers, leading from each end of the jaws, under the ship's bottom, are in fact a continuance of the jaws themselves. Nor can it be apprehended that the cap, when fixed, may be impelled from its station, either by the efforts of the sea, or the course of the ship through the water, tho' even the hawfers, which confine it in the first instance, should be relaxed:—the experiment proves, that the partners must be first torn away, or the main-piece broken off.

"Since the improved state of navigation, notwithstanding remedies have been found in general for the most disastrous accidents at sea, experience has evinced that nothing complete, had been hitherto invented to supply the loss of a rudder. The first expedient within my knowledge were cables veered astern, with tackles leading from them to the ship's quarters. This practice was superseded by the invention of the machine usually called the *Ipswich machine*; but the construction of it is complex and unwieldy, and vessels are seldom found in possession of the materials which form it. Commodore Byron, in the Journal of his Voyage round the World, says, that the Tamer, with every assistance from his own ship, was five days in constructing it. Besides, like the before

Rudder.

Plate
CCCCXL

Ruddiman before-mentioned scheme, it can only operate to steer a ship large (and that but very wildly), and of course, under the circumstance of a lee-shore, defeat the most skilful exertions of a seaman. Several other expedients have been adopted, which I shall not mention here, as the same defects equally appear in all.

"Thus it was apparent, that ample room was left for the discovery of some more certain resource than any of the former; and the scheme which has suggested itself to me, will, I trust, be found fully to answer the purpose intended. The materials are such as scarcely any ship can venture to sea without; and the construction so speedy, easy, and simple, that the capacity of the meanest sailor will at once conceive it. I need not, from mathematical principles, show the certainty of its effect, as it is formed and managed in the same manner as a ship's common rudder: and as the common rudder is certainly of all inventions the best calculated for guiding a vessel through the water, it will of course follow, that whatever substitute the nearest resembles that, must be best adapted to supply its loss."

RUDDIMAN (Thomas), one of the most eminent grammarians which Scotland has produced, was born in October 1674 at Ragged, in the parish of Boyndie and county of Banff. His father James Ruddiman was a farmer, and strongly attached to the house of Stuart.

Mr Ruddiman was instructed in the principles of Latin grammar at the parish-school of Boyndie, where his application was so vigorous, and his progress so rapid, that he quickly surpassed all his class-fellows. His master George Morison, who was a skilful and attentive teacher, being unwilling to check his ardour for learning, permitted him to follow the impulse of his genius, and to advance without waiting the slow progress of the other boys.

The pleasure which the youthful mind receives from vivid description, though wild and romantic, approaches to ecstacy, and often makes an impression which remains indelible. While at school, the first book which charmed the opening mind of Ruddiman was Ovid's *Metamorphoses*; nor did he cease to relish the beauties of this author when his judgment was mature, for during the rest of his life Ovid was his favourite poet.

At the age of sixteen he became anxious to pursue his studies at the university; but his father thinking him too young, opposed his inclination. Hearing of the competition trial, which was annually held at King's college, Aberdeen, for a certain number of bursaries on the foundation of that university, Ruddiman's ambition was kindled. Without the knowledge of his father, and with only a single guinea in his pocket, which his sister had privately given him, he set out for that place. On the road he was met by a company of gypsies, who robbed him of his coat, his shoes, his stockings, and his guinea. This misfortune did not damp his enterprising spirit: He continued his journey to Aberdeen, presented himself before the professors as a candidate; and though he had neither clothes to give him a decent appearance nor friends to recommend him, he gained the first prize.

After attending the university four years, he obtained the degree of master of arts; an honour of which he was always proud. The thesis says, the disputation on this occasion lasted *ab aurora usque ad vesperum*, i. e.

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"from morning till night." Tho' Ruddiman was only twenty years of age when he left the university, it appears from a book intitled *Rhetoricorum Libri tres*, composed before this period, but never published, that he had then read the Roman classics with uncommon attention and advantage.

He was soon after engaged as a tutor to the son of Robert Young, Esq; of Auldbar, the great grandson of Sir Peter Young, who under the direction of Buchanan had been preceptor of James VI. His income here must have been very small, or his situation unpleasant; for within a year he accepted the office of schoolmaster in the parish of Laurence-kirk. The profession of schoolmaster in a country-parish at that period could open no field for ambition, nor prospect of great emolument; for by an act of parliament passed in 1633, the salary appropriated to this office could not be increased above 200 merks Scots, or L. 11 : 2 : 2½ Sterling. In discharging the duties of this humble but important station, it is probable that he used Simson's *Rudimenta Grammatica*, which was then generally taught in the northern schools, and by which he himself had been instructed in the principles of Latin grammar.

When Ruddiman had spent three years and a half in this employment, the celebrated Dr Pitcairne happening to pass through Laurence-kirk, was detained in that village by a violent storm. Pitcairne wanting amusement, inquired at the hostess if she could procure any agreeable companion to bear him company at dinner. She replied, that the schoolmaster, though young, was said to be learned, and, though modest, she was sure could talk. Pitcairne was delighted with the conversation and learning of his new companion, invited him to Edinburgh, and promised him his patronage.

When Ruddiman arrived in Edinburgh, the advocates library, which had been founded eighteen years before by Sir George Mackenzie, attracted his curiosity and attention, and he was soon after appointed assistant-keeper under Mr Spottiswoode the principal librarian. His salary for executing this laborious office was L. 8 : 6 : 8. He had besides a small honorary present from those who were admitted advocates for correcting their theses; he was also paid for copying manuscripts for the use of the library. And the faculty, before he had held the office two years, were so highly pleased with his conduct, that they made him a present of 50 pounds Scots, or L. 4 : 3 : 4 Sterling.

During the sitting of the court of session he attended the library from ten till three. But this confinement did not prevent him from engaging in other laborious duties: A part of his time was occupied in teaching young gentlemen the Latin language. Some he attended at their lodgings, some waited upon him, and some resided in his own house. An exact list of the names of those who attended him, expressing the date of their entry, and the sums which he was to receive from each, has been found in his pocket-book; a curious relic, which is still preserved.

When Ruddiman's merit as a scholar became better known, his assistance was anxiously solicited by those who were engaged in literary publications. Freebairne, a respectable bookseller of that period, prevailed upon him to correct and prepare for the press Sir Robert Sibbald's *Introductio ad historiam rerum a Romanis gestarum in ea Borealis Britannia parte qua ultra murum*

Ruddiman. *Pitacum est.* He received for his labour L. 3 Sterling. At the request of Mr Spottiswoode librarian, for L. 5 Sterling he contributed his aid to the publication of Sir Robert Spottiswoode's *Practiques of the Laws of Scotland*.

In 1707 he commenced auctioneer, an employment not very suitable to the dignified character of a man of letters: but to this occupation he was probably impelled by necessity; for upon balancing his accounts at the end of the preceding year, the whole surplus was L. 28, 2s. with prospects of L. 236 : 7 : 6 Scots. Ruddiman had a family; and seems to have been a stranger to that foolish pride which has seduced some literary men into the opinion, that it is more honourable to starve than have recourse to an occupation which men of rank and opulence are accustomed to despise. The same year he published an edition of *Voluseni de Animi Tranquillitate Dialogus*, to which he prefixed the life of Volusenus. Volusenus or Wilson was a learned Scotsman, and had the honour to be patronised by Cardinal Wolsey (see WILSON). In 1709 he published *Johnstoni Cantici Solomonis Paraphrasis Poetica*, and *Johnstoni Cantica* with notes, which he dedicated in verse to his friend and patron Dr Pitcairne. The edition consisted of 200 copies. The expence of printing amounted to L. 5, 10 s. Sterling, and he sold them at a shilling each copy.

The philological talents of Ruddiman were next directed to a more important object, in which they became more conspicuous and useful. Freebairne the bookseller proposed to publish a new edition of the Scottish translation of Virgil's *Æneid* by Gawin Douglas bishop of Dunkeld. Of the contributions which some eminent characters of the age presented, the most valuable were supplied by Ruddiman. Freebairne acknowledged in general terms this obligation, but has not done him the justice to inform the reader what these valuable contributions were, and Ruddiman's modesty restrained him from publicly asserting his claim. From the pocket-book which has been already mentioned, it appears that Ruddiman corrected the work and wrote the glossary; and there is strong reason to believe that he was the author of the 42 general rules for assisting the reader to understand the language of Douglas. To those who wish to be acquainted with the ancient language of this island, the glossary will be a treasure, as it forms a compendious dictionary of the Anglo-Saxon. For this elaborate work Ruddiman was allowed L. 8 : 6 : 8 Sterling.

The reputation of Ruddiman had now extended to a distance. He was invited by the magistrates of Dundee to be rector of the grammar-school of that town; but the faculty of advocates, anxious to retain him, augmented his salary to L. 30 : 6 : 8 Sterling, and he declined the offer.

In 1711 he assisted Bishop Sage in publishing Drummond of Hawthornden's works; and performed the same favour to Dr Abercrombie, who was then preparing for the press his *Martial Achievements*.

In 1713 he was deprived of his friend Dr Pitcairne. On this occasion he testified all the respect which friendship could inspire to the memory of his deceased patron and surviving family. He composed Pitcairne's epitaph, and conducted the sale of his library, which was disposed of to Peter the Great.

In 1714 the *Rudiments of the Latin tongue* were published. Eighteen or nineteen Latin grammars, composed by Scotchmen, had appeared before this period; yet such is the intrinsic value of this little treatise, that it soon superseded all other books on the subject, and is now taught in all the grammar-schools in Scotland. It has also been translated into other languages.

He was next called upon to publish the works of Buchanan. The value of these he enhanced much by an elaborate preface, his *Tabula Regum Scotiæ Chronologica*, and *Proprium Nominum Interpretatio*. The interpretation of proper names was highly requisite; for Buchanan has so disguised them in the Roman dress, that the original name is scarcely discernible; and the preface puts the reader on his guard against the chronological errors and factious spirit of the history. Ruddiman also added a learned dissertation, intitled *De Metris Buchananæis Libellus*, and subjoined annotations critical and political on the History of Scotland. As he espoused the cause of Queen Mary, he raised against himself an host of enemies, and gave occasion to that celebrated controversy which has been carried on with much keenness and animosity, and with little intermission, even to the present times. For this work Ruddiman was promised L. 40 Sterling.

He had now been so long accustomed to superintend the press, that he was led to form the plan of erecting a printing-office himself (A). Accordingly, in the year 1715, he commenced printer in partnership with his brother Walter, who had been regularly bred to the business. Some years after he was appointed printer to the university, along with James Davidson bookseller.

The first literary society formed in Scotland was instituted in the year 1718. It probably derived its origin from the factious and turbulent spirit of the times. The learned, anxious perhaps to find some respite from the political dissensions of the day, endeavoured to procure it in elegant amusement; for one of the fundamental articles of the new association was, that the "affairs of church and state should not be introduced." Ruddiman and the masters of the high-school had the honour to found this society. They were afterwards joined by Lord Kaimes.

In 1725 the first part of his *Grammaticæ Latine Institutiones*, which treated of etymology, was published. The second part, which explained the nature and principles of syntax, appeared in 1731. He also wrote a third part on prosody, which is said to be more copious and correct than any other publication on the subject. When urged to give it to the public, he said dryly, "The age has so little taste, the sale would not pay the expence." Of this work he published an abridgement,

(A) It has long been an object of curiosity to ascertain the time at which the art of printing was introduced into Scotland. Mr Robertson, the keeper of the records, has lately discovered a patent of King James IV. which renders it certain that a printing-press was first established at Edinburgh during the year 1507, 30 years after Caxton had brought it into England. See PRINTING, p. 522.

Ruddiman. ment, to which he subjoined an abstract of his prodigy.

Ruddiman next engaged in the management of a newspaper, an employment for which his genius and industry seemed to render him well-qualified. But those who should expect either much information or amusement from this publication, would perhaps be greatly disappointed. The newspaper which he conducted was the *Caledonian Mercury*, and was established in 1720 by William Rolland a lawyer. Ruddiman acted only in the capacity of printer for five years; but upon the death of Mr Rolland in 1729, the property was transferred to him, or to his brother Walter and him conjunctly. This paper continued in the family of Ruddiman till the year 1772, when it was sold by the trustees of his grandchildren to Mr John Robertson.

The *Caledonian Mercury* was at first printed three times a week, on Monday, Tuesday, and Thursday, in a small 4to of four pages, with two columns in each page, and 50 lines in each column; so that the whole paper contained only 400 lines. It now contains in its folio size 2480 lines.

Mr Ruddiman, after the death of Mr Spottiswoode librarian, remained for some time in his former station; but was at length appointed keeper of the library, tho' without any increase of salary; and some years after Mr Goodal, the defender of Queen Mary, succeeded him in the office of sub-librarian.

The assiduous application of Ruddiman, supported by such learning, was intitled to wealth, which now indeed flowed upon him in what was at that period deemed great abundance. On the 1st of October 1735, it appeared from an exact statement of his affairs, that he was worth L. 1882 : 5 : 2 Sterling; and on the 20th of May, the ensuing year, his wealth had increased to L. 1985 : 6 : 3 Sterling. In 1710 he valued his effects at L. 24 : 14 : 9 Sterling.

In 1737 the schoolmasters and teachers in Edinburgh formed themselves into a society, in order to establish a fund for the support of their wives and children. Of this scheme Ruddiman was an active promoter, and was chosen treasurer. Perhaps it was this association which in 1742 gave the idea to the Scots clergy of forming their widows fund.

In 1739 he published *Selectus Diplomatum et Numismatum Scotiae Thesaurus*. This work was projected and begun by Anderson (hence called *Anderson's Diplomata*), but was finished by Ruddiman. The preface, which is an excellent commentary on Anderson's performance, was written by Ruddiman, and displays a greater extent of knowledge than any of his other productions.

As Ruddiman had imbibed from his father those political principles which attached him to the family of Stuart, he probably did not remain an unconcerned spectator of the civil commotions which in 1745 agitated Scotland. He did not, however, take any active part in the rebellion. His principles, he has been heard to say, induced him to be a quiet subject and a good citizen. He retired to the country during the summer of 1745; and while his fellow-citizens were spilling each others blood, he was more happily engaged in writing *Critical Observations on Burman's Commentaries on Lucan's Pharsalia*. The *Caledonian Mercury* was in the mean time marked with a jealous eye. His son,

who had for some time been the principal manager of that newspaper, having copied a paragraph which was reckoned seditious from an English paper, was imprisoned. The solicitation of his father procured his release: but it was too late; for the unhappy young man had contracted a distemper in the tolbooth of Edinburgh which brought him to his grave.

During the last seventeen years of his life Ruddiman was almost incessantly engaged in controversy. To this he was in some measure compelled by the violent attacks which some critics of the times had successively made upon his works. He was first called upon by Benson, auditor in the exchequer, to determine the comparative merit of Buchanan and Johnston as poets. He gave a decided preference to Buchanan in perspicuity, purity, and variety of style; but, like a candid critic, allowed Johnston to be superior in the harmony of his numbers. His next antagonist was Logan, one of the ministers of Edinburgh, a weak illiterate man, but an obstinate polemic. The subject of contest was, whether the crown of Scotland was strictly hereditary, and whether the birth of Robert III. was legitimate? Ruddiman maintained the affirmative in both points, and certainly far surpassed his antagonist in the powers of reasoning. He proved the legitimacy of Robert by the public records of the kingdom with a force of argument which admits of no reply; but in discussing the first question (by which he was led to consider the contest between Bruce and Baliol) he was not so successful: for there are many instances in the history of Scotland in which the brother succeeded to the crown in preference to the son. He showed, however, that the Scottish crown was at no period properly elective; and that, according to the old licentious constitution of the kingdom, the right of Bruce, who was the nearest in blood to the royal stock, was preferable to the claim of Baliol though descended from the eldest daughter.

But the labours of Ruddiman did not end when the pen dropt from the feeble hand of Logan. He was soon called upon to repel the attacks of Love schoolmaster of Dalkeith, who maintained, in opposition to him, that Buchanan had neither repented of his treatment of Queen Mary, nor had been guilty of ingratitude to that princess. That Buchanan ever repented there is reason to doubt. Whether he was guilty of ingratitude, let the unbiassed determine, when they are assured by authentic records that Mary conferred on him a pension for life of 500 pounds Scots.

When Ruddiman had arrived at his eightieth year, and was almost blind, he was assailed by James Man, master of an hospital at Aberdeen, with a degree of rancour and virulence, united with some learning and ability, which must have touched him in a sensible manner, and alarmed his fears for his reputation after his decease. He was called a *finished pedant*, a *furiosus calumniator*, and a *corrupter of Buchanan's works*. The venerable old man again put on his armour, entered the lists, and gained a complete victory. Man, with all his acuteness, could only point out twenty errors in two folio volumes. Some of these were typographical, some trifling, and some doubtful. Ruddiman, with much pleasantry, drew up against Man an account of 469 errors, consisting of 14 articles, of which two or three may be produced as a specimen. 1. Falsehoods and prevarications, 20. 2. Absurdities, 69. 3. Passages from

Ruddiman, classic authors which were misunderstood by Man, &c. **Rudeheim**. The triumph which he gained over this virulent adversary he did not long enjoy; for he died at Edinburgh on the 19th of January 1757, in the 83d year of his age, and was buried in the Grey Friars churchyard without any monument to distinguish his grave.

He was three times married, but left behind him only one daughter, Alison, who was married in 1747 to James Stewart, Esq. He is supposed to have died worth L. 3000 Sterling.

He was of the middle size, of a thin and straight make, and had eyes remarkably piercing. Of his talents and learning his works afford the most satisfactory proofs. His memory was tenacious and exact. He could repeat long passages of his favourite poet Ovid, to the amount of 60 lines, and without omitting a word. He was so great a master in the Latin language, that he has perhaps been equalled by none since the days of Buchanan.

Ruddiman has left a character unstained by vice, and distinguished by many virtues. His piety was exemplary. He spent Sunday in religious employment; and we are informed had prayers read to him every morning by his amanuensis when the infirmities of age required such an assistant. He was frugal of his time, neither indolent nor fond of amusement; and so remarkably temperate, that it is said he was never intoxicated. Though often forced into controversy, and treated with insolence, he never descended to scurrility and abuse, nor cherished resentment against his enemies. His candour was much admired in one instance in the favourable character which he published in the Caledonian Mercury of his antagonist Love (B), after his decease. Upon the whole, it must be allowed that Ruddiman has been of great service to classical literature, and an honour to his native country.

RUDESHEIM, a rich village of the Rhinegau, situated about five miles from the city of Mentz, contains about 2500 inhabitants. The wine of this place is looked upon as without comparison the best of the Rhinegau, and consequently of all Germany. Baron Riefbeck says, he found it much more fiery than that of Hochheim; but that for pleasantness of taste there is no comparison betwixt them. The best Rudeheim, like the best Hochheimer, sells upon the spot for three guilders the bottle. "You can (says our author) have no tolerable wine here for one guilder, nor any very good for two; at least I should prefer the worst Burgundy I ever tasted to any Rudeheimer I met with either here or at Mentz for these prices. Indeed the wine of our host (a rich ecclesiastic) was far better than any we could get at the inn. It stands to reason, that the same vintage furnishes grapes of very different degrees of goodness; but besides this, it is in the Rhinegau as every where else. The best wines are generally sent abroad by the poor and middling inhabitants, and the worst kept for internal consumption; for the expence of the carriage being the same in both cases, strangers had much rather pay a double price for the good than have the bad. It is only rich people, such as our host was, who can afford to keep the produce of their land for their own drinking. Upon this principle, I have eaten much better Swiss cheeses out of Switzerland than in it, and have drank much better Rhenish in the jons of the northern parts of Germany than in the country where the wine grows. The position of the country also contributes to render the wine dearer than it would otherwise be. As the best wine grows in its more northern parts, the easy transport by the Rhine to Holland, and all parts of the world, raises its price above its real value. The place where the flower of the Rudeheim wine grows is precisely the neck of the land, formed by the winding of the Rhine to the north, after it has run to the westward from Mentz hither. This neck, which is a rock almost perpendicular, enjoys the first rays of the rising and the last of the setting sun. It is divided into small low terraces, which are carried up to the utmost top of the hill like steep stairs; these are guarded by small walls and earthen mounds, which are often washed away by the rain. The first vine was brought hither from France, and they still call the best grape the Orleanois. They plant the vine stocks very low, scarce ever more than four or five feet high. This way of planting the vine is favourable to the production of a great deal of wine, but not to its goodness, as the phlegmatic and harsh parts of it would certainly evaporate more, if the sap was refined through higher and more numerous canals. This is undoubtedly the reason why every kind of Rhenish has something in it that is harsh, sour, and watery. The harvest of the best vineyards, which are the lower ones, in the above-mentioned neck of land, is often bought before-hand, at the advanced price of some ducats, by Dutch and other merchants. It must be a very rich stock to yield above four measures of wine.—You may easily imagine, that the cultivation of vineyards must be very expensive in this country, as the dung, which is extremely dear, must be carried up to the top of the mountains on the peasants shoulders."

Rudeheim || Rue.

RUDIMENTS, the first principles or grounds of any art or science, called also the elements thereof.

RUE, in botany. See **RUTA**.

RUE (Charles de la), a French orator and poet, was born at Paris in 1643. He was educated at the college of the Jesuits, where he afterwards became a professor of humanity and rhetoric. At an early age his talent for poetry disclosed itself. In 1667, when he was only 24 years old, he composed a Latin poem on the conquests of Louis XIV. which was so much esteemed by the

(B) The following character of Love was published in the Caledonian Mercury of the 24th of September 1750. "On Thursday morning died at Dalkeith, after a lingering illness, in the 55th year of his age, Mr John Love, rector of the grammar-school there; who, for his uncommon knowledge in classical learning, his indefatigable diligence, and strictness of discipline without severity, was justly accounted one of the most sufficient masters in this country. This character is doubtless just; though Love is now known to have been the schoolmaster satirized by Smollet in the beginning of his Roderick Random.

Rue,
Ruellia.

the celebrated Peter Corneille, that he translated it into French, presented it to the King, and at the same time passed so high encomiums on the superior merit of the original, that the author was received into the favour of that monarch, and ever after treated by him with singular respect.

De la Rue, anxious to preach the gospel to the Canadians, requested leave of absence from his superiors; but having destined him for the pulpit, they refused to comply with his request. Accordingly he commenced preacher, and became one of the most eminent orators of his age. In his discourses he would probably have been too lavish of his wit, if he had not been cautioned against it by a judicious courtier. "Continue (said he) to preach as you do. We will hear you with pleasure as long as you reason with us; but avoid wit. We value the wit contained in two verses of a song more than all that is contained in most of the sermons in Lent."

Respecting the delivery of sermons, he entertained an opinion quite opposite to the established practice of his countrymen. In France it was customary not to read sermons from the pulpit, but to recite them from memory. This he considered as a laborious task not compensated by any advantages. On the contrary, he was of opinion that reading sermons was preferable. The preacher, with his discourse before him, could read it with ease, free from that timidity and embarrassment which frequently attends the act of recollection; and he would save a considerable time which is usually spent in committing it to memory. In these sentiments many will not be disposed to acquiesce; but, without pretending to determine the question, it may be asserted, that a sermon, whether read or recited, if spoken in a serious manner, and with proper inflections and tones of voice, will produce all the effects for which a sermon is calculated.

De la Rue died at Paris on the 27th of May 1725, at the age of 82.

He was as amiable in society as he was venerable in the pulpit. His conversation was pleasant and instructive. His taste and knowledge enabled him to converse with ease, and to express himself with propriety on every subject. He charmed his superiors by his wit, and his inferiors by his affability. Though living amidst the bustle of the world, he was always prepared for the solitude of the closet and the retreat of the cloister. In the pulpit he poured forth the finest effusions of eloquence in the most animated and impressive manner. He published Panegyrics, Funeral Orations, and Sermons. His best sermon is that intitled *Des Calamités Publiques*, and his most admired funeral oration was composed on the Prince of Luxemburg. There are also tragedies of his writing, both in Latin and French, which were approved by Corneille. He was one of those who published editions of the classics for the use of the Dauphin. Virgil, which fell to his share, was published with notes, and a Life of the Poet, in 1675, 4to, and is a valuable and useful edition.

RUELLIA, in botany: A genus of the angiospermia order, belonging to the didynamia class of plants; and in the natural method ranking under the 40th order, *Personate*. The calyx is quinquepartite; the corolla sub-campululated; the stamina approaching together in pairs; the capsule springing asunder by means of its elastic segments.

RUFF, in ichthyology; a species of PERCA.

RUFF, in ornithology, a species of TRINGA.

RUFFHEAD (Dr Owen), was the son of his Majesty's baker, in Piccadilly; who buying a lottery ticket for him in his infancy, which happened to be drawn a prize of 500l. this sum was applied to educate him for the law. He accordingly entered in the Middle Temple; and seconded so well the views of his father, that he became a good scholar and an acute barrister. While he was waiting for opportunities to distinguish himself in his profession, he wrote a variety of pamphlets on temporary politics; and was afterwards distinguished by his accurate edition of *The Statutes at Large*, in 4to. He now obtained good business, though more as a chamber-counsellor in framing bills for parliament than as a pleader; but his close application to study, with the variety of works he engaged in as an author, so impaired his constitution, that after the last exertion of his abilities to defend the conduct of administration toward Mr Wilkes, by a pamphlet intitled, "The Case of the late election for the county of Middlesex considered," he was prevented from receiving the reward of a place in the Treasury, by dying in 1769, at about 46 years of age. Some time before his death, bishop Warburton engaged him to write his long promised *Life of Alexander Pope*; which, however, when executed, was very far from giving general satisfaction. The author attributed his ill success to the deficiency of his materials; while the public seemed rather to be of opinion that, as a lawyer, he ventured beyond his proper line, when he assumed the task of a critic in poetry.

RUFFLING, or RUFFING, a beat on the drum. Lieutenant-generals have three ruffles, major-generals two, brigadiers one, and governors one; as they pass by the regiment, guard, &c.

RUFINUS was born about the middle of the fourth century at Concordia, an inconsiderable town in Italy. At first he applied himself to the belles lettres, and particularly to the study of eloquence. To accomplish himself in this elegant art, he removed to Aquileia, a town at that time so celebrated that it was called a second Rome. Having made himself acquainted with the polite literature of the age, he withdrew into a monastery, where he devoted himself to the study of theology. While thus occupied, St Jerome happened to pass through Aquileia. Rufinus formed an intimate friendship with him; but to his inexpressible grief was soon deprived of the company of his new friend, who continued his travels through France and Germany, and then set out for the east. Rufinus, unable to bear his absence, resolved to follow him. Accordingly he embarked for Egypt; and having visited the hermits who inhabit the deserts of that country, he repaired to Alexandria to hear the renowned Didymus. Here he was gratified with a sight of St Melania, of whose virtue and charity he had heard much. The sanctity of his manners soon obtained the confidence of St Melania, which continued without interruption during their residence in the east, a period of 30 years. The Arians, who swayed the ecclesiastical sceptre in the reign of Valens, persecuted Rufinus with great cruelty. They threw him into a dungeon, loaded him with chains, and after almost starving him to death, banished him to the deserts of Palestine. From this exile he was relieved by the pecuniary aid of St Melania, who employed her wealth in ransoming those

Ruff
||
Rufinus.

Rufinus
||
Ruins.

confessors who had been condemned to prison or banishment.

St Jerome, supposing that Rufinus would immediately proceed to Jerusalem, wrote to one of his friends there, congratulating him on the prospect of so illustrious a visitor. To Jerusalem he went, and having built a monastery on the Mount of Olives, he there assembled a great number of hermits, whom he animated to virtue by his exhortations. He converted many to the Christian faith, and persuaded more than 400 hermits who had taken part in the schism of Antioch to return to the church. He prevailed on many Macedonians and Arians to renounce their errors.

His attachment to the opinions of Origen set him at variance with St Jerome, who, being of a temper peculiarly irritable, not only retracted all the praises which he had lavished upon him, but loaded him with severe reproaches. Their disputes, which were carried to a very indecent height, tended to injure Christianity in the eyes of the weak. Theophilus, their mutual friend, settled their differences; but the reconciliation was of short continuance. Rufinus having published a translation of the principles of Origen at Rome, was summoned to appear before Pope Anastasius. But he made a specious apology for not appearing, and sent a vindication of his work, in which he attempted to prove that certain errors, of which Origen had been accused, were perfectly consistent with the opinions of the orthodox. St Jerome attacked Rufinus's translation. Rufinus composed an eloquent reply, in which he declared that he was only the translator of Origen, and did not consider himself bound to sanction all his errors. Most ecclesiastical historians say that Rufinus was excommunicated by Pope Anastasius; but for this no good evidence has been brought. In 407, he returned to Rome; but the year after, that city being threatened by Alaric, he retired to Sicily, where he died in 410.

His works are, 1. A Translation of Josephus; 2. A Translation of several works of Origen; 3. A Latin Version of Ten Discourses of Gregory Nazianzen, and Eight of Basil's; 4. Chromatius of Aquileia prevailed on him to undertake a Translation of the Ecclesiastical History of Eusebius, which engaged him almost ten years. He made many additions to the body of the work, and continued the history from the 20th year of Constantine to the death of Theodosius the Great. Many parts of this work are negligently written, many things are recorded as facts without any authority but common report, and many things of great importance are entirely omitted. 5. A Vindication of Origen. 6. Two Apologies addressed to St Jerome. 7. Commentaries on the prophets Hosea, Joel, and Amos. 8. Lives of the Hermits. 9. An Explanation of the Creed.

RUGEN, an island in the Baltic Sea, on the coast of Pomerania, over against Stralsund, about 23 miles in length and 15 in breadth, with the title of a principality. It is strong both by art and nature, abounds in corn and cattle, and belongs to Sweden. The chief town is Bergen. E. Long. 14. 30. N. Lat. 54. 32.

RUINS, a term particularly used for magnificent buildings fallen into decay by length of time, and whereof there only remains a confused heap of materials. Such are the ruins of the tower of Babel, of the tower of Belus, two days journey from Bagdat, in Syria, on

the banks of the Euphrates; which are now no more than a heap of bricks, cemented with bitumen, and whereof we only perceive the plan to have been square. Such also are the ruins of a famous temple, or palace, near Schiras, in Persia, which the antiquaries will have to have been built by Ahafuerus, and which the Persians now call Tchelminar, or Chelminar; *q. d.* the 40 columns; because there are so many columns remaining pretty entire, with the traces of others; a great quantity of basso-relievos, and unknown characters, sufficient to shew the magnificence of the antique architecture. The most remarkable ruins now existing of whole cities are those of PALMYRA and PERSEPOLIS, of the grandeur of which some idea may be formed from the views given in the plates referred to from these articles, to which may be added those of HERCULANEUM and POMPEIUM. The magnificent ruins still remaining in Rome, Athens, &c. of particular edifices, as temples, palaces, amphitheatres, aqueducts, baths, &c. it were endless to enumerate, and beyond the plan of this work to represent.

RUIZIA, in botany: A genus of the polyandria order, belonging to the monodelphia class of plants; and in the natural method ranking under the 37th order, *Columniferae*. The calyx is double; the external are triphyllous; the internal are parted into five. The corolla consists of five petals, inclining to the right hand side, and adhering to the stamina, which are from 30 to 40. It has ten styli, and as many capsulae. These are compressed and membranous. In each capsule are two seeds. There are four species, viz. 1. *Cordata*; 2. *Lobata*; 3. *Palmata*; 4. *Lacinata*, all natives of Asia and the Cape of Good Hope.

RULE, in matters of literature, a maxim, canon, or precept, to be observed in any art or science.

RULE, in a monastic sense, a system of laws or regulations, whereby religious houses are governed, and which the religious make a vow, at their entrance, to observe. Such are the rules of the Augustines, Benedictines, Carthusians, Franciscans, &c. See AUGUSTINES, &c.

RULES of Court, in law, are certain orders made from time to time in the courts of law, which attorneys are bound to observe, in order to avoid confusion; and both the plaintiff and defendant are at their peril also bound to pay obedience to rules made in court relating to the cause depending between them,

It is to be observed, that no court will make a rule for any thing that may be done in the ordinary course; and that if a rule be made, grounded upon an affidavit, the other side may move the court against it, in order to vacate the same, and thereupon shall bring into court a copy of the affidavit and rule. On the breach and contempt of a rule of court an attachment lies; but it is not granted for disobedience to a rule, when the party has not been personally served; nor for disobeying a rule made by a judge in his chamber, which is not of force to ground a motion upon, unless the same be entered.

A rule of court is granted every day the courts at Westminster sit, to prisoners of the King's-bench or Fleet prisons, to go at large about their private affairs.

RULE of Three. See ARITHMETIC and PROPORTION.

RULE, or Ruler, an instrument of wood or metal, with several lines delineated on it; of great use in

Ruizia,
Rule.

Rum. practical mensuration. When a ruler has the lines of chords, tangents, sines, &c. it is called a *plane scale*.

RUM, a species of brandy or vinous spirits, distilled from sugar-canes.

Rum, according to Dr Shaw, differs from simple sugar-spirit, in that it contains more of the natural flavour or essential oil of the sugar-cane; a great deal of raw juice and parts of the cane itself being often fermented in the liquor or solution of which the rum is prepared. The unctuous or oily flavour of rum is often supposed to proceed from the large quantity of fat used in boiling the sugar; which fat, indeed, if coarse, will usually give a stinking flavour to the spirit in our distillations of the sugar liquor or wash, from our refining sugar-houses; but this is nothing of kin to the flavour of the rum, which is really the effect of the natural flavour of the cane.

The method of making rum is this: When a sufficient stock of the materials are got together, they add water to them, and ferment them in the common method, though the fermentation is always carried on very slowly at first; because at the beginning of the season for making rum in the islands, they want yeast or some other ferment to make it work: but by degrees, after this, they procure a sufficient quantity of the ferment, which rises up as a head to the liquor in the operation; and thus they are able afterwards to ferment and make their rum with a great deal of expedition, and in large quantities.

When the wash is fully fermented, or to a due degree of acidity, the distillation is carried on in the common way, and the spirit is made up proof: though sometimes it is reduced to a much greater strength, nearly approaching to that of alcohol or spirit of wine; and it is then called *double-distilled rum*. It might be easy to rectify the spirit, and bring it to much greater purity than we usually find it to be of: for it brings over in the distillation a very large quantity of the oil; and this is often so disagreeable, that the rum must be suffered to lie by a long time to mellow before it can be used; whereas, if well rectified, it would grow mellow much sooner, and would have a much less potent flavour.

The best state to keep rum in, both for exportation and other uses, is doubtless that of alcohol or rectified spirit. In this manner it would be transported in one half the bulk it usually is, and might be let down to the common proof-strength with water when necessary: for the common use of making punch, it would likewise serve much better in the state of alcohol; as the taste would be cleaner, and the strength might always be regulated to a much greater exactness than in the ordinary way.

The only use to which it would not so well serve in this state, would be the common practice of adulteration among our distillers; for when they want to mix a large portion of cheaper spirit with the rum, their business is to have it of the proof-strength, and as full of the flavouring oil as they can, that it may drown the flavour of the spirits they mix with it, and extend its own. If the business of rectifying rum was more nicely managed, it seems a very practicable scheme to throw out so much of the oil, as to have it in the fine light state of a clear spirit, but lightly impregnated with it: in this case it would very nearly resemble arac, as is

proved by the mixing a very small quantity of it with a tasteless spirit, in which case the whole bears a very near resemblance to arac in flavour.

Rum is usually very much adulterated in Britain; some are so bare-faced as to do it with malt-spirit; but when it is done with molasses spirit, the tastes of both are so nearly allied, that it is not easily discovered. The best method of judging of it is by setting fire to a little of it; and, when it has burnt away all the inflammable part, examining the phlegm both by the taste and smell.

RUM is a considerable island, one of the Hebrides; or rather one continued rock, of nearly 30 miles in circumference. It is the property of Mr Maclean of Coll; contains 300 inhabitants; grazes cattle and sheep; pays 200 l. rent annually: but has neither kelp, freestone, nor lime.

RUMELIA, in geography, the same with ancient Greece; now a part of Turkey in Europe.

RUMEN, the paunch, or first stomach of such animals as chew the cud; thence called *RUMINANT Animals*. See *COMPARATIVE Anatomy*, n° 92, &c.

RUMEX, dock, in botany: A genus of the trigynia order, belonging to the hexandria class of plants; and in the natural method ranking under the 12th order, *Holoracea*. The calyx is triphyllous; there are three connivent petals, and one triquetrous seed. There are 27 species; of which the most remarkable are,

1. The *patientia*, commonly called *patience rhubarb*: This was formerly much more cultivated in the British gardens than at present: the roots of this have been generally used for the monk's rhubarb, and has even been thought to be the true kind; but others suppose the second sort should be used as such. The root is large, and divides into many thick fibres; their outer cover is brown, but they are yellow within, with some reddish veins; the leaves are broad, long, and acute-pointed; their footstalks are of a reddish colour; the stalks rise six or seven feet high, and divide towards the top into several erect branches garnished with a few narrow leaves terminating with loose spikes of large staminate flowers. These appear in June, and are succeeded by pretty large three-cornered seeds, whose coverings are entire, which ripen in autumn.

2. The *alpinus*, or monk's rhubarb, grows naturally on the Alps, but has long been cultivated in the gardens of this country. This hath large roots which spread and multiply by their offsets: they are shorter and thicker than the former, are of a very dark brown on the outside, and yellow within. The leaves are of the round heart-shape, standing upon long footstalks. The stalks rise from two to three feet high; they are thick, and have a few small roundish leaves on the lower part; but the upper part is closely garnished with spikes of white flowers standing erect close to the stalks. These appear in the latter end of May, and are succeeded by large triangular seeds which ripen in August.

3. The *aquaticus*, or water-dock, grows naturally in ponds, ditches, and standing waters, in many parts of Britain. It is supposed to be the *herba Britannica* of the ancients. It hath large roots which strike deep into the loose mud, sending out leaves which are above two feet long. The stalks rise five or six feet high when the plants grow in water, but in dry land seldom more than three: these are garnished with narrow leaves,

Rum
Rumex.

Ruminant leaves among the spikes of flowers to the top. The flowers stand upon slender footstalks, which are reflexed: they are of an herbaceous colour, appear in June, and the seeds ripen in autumn.

||
Runner.

4. The acutus, or sharp-pointed dock, (the oxylapathum of the shops); but the markets are supplied with roots of the common docks which are indifferently gathered by those who collect them in the fields, where the kind commonly called *butter-dock* (from its leaves being used to wrap up butter) is much more common than this. The roots of this are slender, and run down-right, sending out a few small fibres; the stalks rise about two feet high, garnished at bottom with leaves four inches long, and one and an half broad in the middle. They are rounded at their base, where they are slightly indented, but end in acute points. From the joints of the stalks come out alternately long footstalks, which sustain the spikes of flowers, which grow in small whorls round the stalks, at about an inch distant.

These plants are but seldom cultivated; and so easily multiply by their numerous seeds, that they soon become troublesome weeds where they once get an entrance.

RUMINANT, in natural history, is applied to an animal which chews over again what it has eat before; which is popularly called *chewing the cud*. Peyer, in a treatise *De Ruminantibus et Ruminations*, shows that there are some animals which really ruminate; as oxen, sheep, deer, goats, camels, hares, and squirrels: and that there are others which only appear to do so, as moles, crickets, bees, beetles, crabs, mullets, &c. The latter class, he observes, have their stomachs composed of muscular fibres, by which the food is ground up and down as in those which really ruminate. Mr Ray observes, that ruminants are all four-footed, hairy, and viviparous; some with hollow and perpetual horns, others with deciduous ones.

RUMP OF THE SACRIFICES. Moses had ordained, that the rump and fat of the sheep that were offered for a peace-offering should be put upon the fire of the altar (Lev. iii. 9. vii. 3. viii. 25. ix. 19.). The rump was esteemed the most delicate part of the animal.

RUMPHIA, in botany: A genus of the monogynia order, belonging to the triandria class of plants; and in the natural method ranking with those of which the order is doubtful. The calyx is trifid; the petals three; the fruit a trilocular plum.

RUNDLET, or **RUNLET**, a small vessel, containing an uncertain quantity of any liquor, from 3 to 20 gallons.

RUNGS, in a ship, the same with the floor or ground timbers; being the timbers which constitute her floor; and are bolted to the keel, whose ends are rung-heads.

Rung-Heads, in a ship, are made a little bending to direct the sweep or mold of the futtocks and navel-timbers; for here the lines begin which make the compass and bearing of the ship.

RUNIC, a term applied to the language and letters of the ancient Goths, Danes, and other northern nations. See **ALPHABET**.

RUNNER, in the sea-language, a rope belonging to the garnet and the two bolt-tackles. It is reeved in a single block joined to the end of a pendant: it

has at one end a hook to hitch into any thing; and, at the other, a double block, into which is reeved the fall of the tackle, or the garnet, by which means it purchases more than the tackle would without it.

Running
Thrusk
||
Rupert.

RUNNING-THRUSH, among farriers. See **FARRIER**, sect. xlv.

RUNET, or **RENNET**, is the conereted milk found in the stomachs of sucking quadrupeds, which as yet have received no other nourishment than their mother's milk. In ruminating animals, which have several stomachs, it is generally found in the last, though sometimes in the next to it. If the runnet is dried in the sun, and then kept close, it may be preserved in perfection for years. Not only the runnet itself, but also the stomach in which it is found, curdles milk without any previous preparation. But the common method is, to take the inner membrane of a calf's stomach, to clean it well, to salt and hang it up in brown paper: when this is used the salt is washed off, then it is macerated in a little water during the night, and in the morning the infusion is poured into the milk to curdle it. But see more particularly the article **CHEESE** for a proper receipt to make runnet, upon which the quality of the cheese greatly depends.—The medicinal qualities of runnet are its acrimony, its resolvent power, and its usefulness in surfeits from food of difficult digestion.

RUPEE, a silver coin current in the East Indies, worth about 2 s. 6 d.

RUPERT, or **ROBERT**. See **ROBERT**.

RUPERT, prince palatine of the Rhine, &c. son of Frederic prince elector palatine of the Rhine and Elisabeth daughter to king James I. of England, was born in 1619. He gave proofs of his bravery at the age of 13; and in 1642 came over into England, and offered his service to king Charles I. his uncle, who gave him a command in his army. At Edgehill he charged with incredible bravery, and made a great slaughter of the parliamentarians. In 1643 he seized the town of Cirencester; obliged the governor of Litchfield to surrender; and having joined his brother prince Maurice, reduced Bristol in three days, and passed to the relief of Newark. In 1644 he marched to relieve York, where he gave the parliamentarians battle, and entirely defeated their right wing; but Cromwell charged the marquis of Newcastle with such an irresistible force, that prince Rupert was entirely defeated. After this the prince put himself into Bristol, which surrendered to Fairfax after a gallant resistance. The king was so enraged at the loss of this city, so contrary to his expectation, that he recalled all prince Rupert's commissions, and sent him a pass to go out of the kingdom. In 1648 he went to France, was highly complimented by that court, and kindly received by king Charles II. who sojourned there for the time. Afterward he was constituted admiral of the king's navy; infested the Dutch ships, many of which he took; and having engaged with De Ruyter, obliged him to fly. He died in 1682, and was interred in king Henry VII.'s chapel, Westminster, with great magnificence. Mr Granger observes, that he possessed in a high degree that kind of courage which is better in an attack than a defence; and is less adapted to the land-service than that of the sea, where precipitate valour is in its element. He seldom engaged but he gained the advantage, which

Rupert
||
Rufcus.

he generally lost by pursuing it too far. He was better qualified to storm a citadel, or even to mount a breach, than patiently to sustain a siege; and would have furnished an excellent hand to a general of a cooler head. This prince is celebrated for the invention of prints in mezzotinto, of which he is said to have taken the hint from a soldier's scraping his rusty fusil. The first print of this kind ever published was done by his highness, and may be seen in the first edition of Evelyn's *Sculptræ*. The secret is said to have been soon after discovered by Sherwin an engraver, who made use of a loaded file for laying the ground. The prince, upon seeing one of his prints, suspected that his servant had lent him his tool, which was a channelled roller; but upon receiving full satisfaction to the contrary, he made him a present of it. The roller was afterwards laid aside; and an instrument with a crenelled edge, shaped like a shoemaker's cutting-knife, was used instead of it. He also invented a metal called by his name, in which guns were cast; and contrived an excellent method of boring them, for which purpose a water-mill was erected at Hackney-marsh, to the great detriment of the undertaker, as the secret died with the illustrious inventor.

RUPERT'S Drops, a sort of glass-drops with long and slender tails, which burst to pieces on the breaking off those tails in any part; said to have been invented by prince Rupert, and therefore called by his name. Concerning the cause of this surprising phenomenon scarce any thing that bears the least appearance of probability has been offered. Their explosion is attended in the dark with a flash of light; and by being boiled in oil, the drops are deprived of their explosive quality.

RUPIN, or **RAPIN**, a town of Germany, in the marquissate of Brandenburg, and capital of a duchy of the same name. It is divided into the Old and the New. The Old was nothing but an ancient castle, very well furnished, the late king of Prussia, before his father's death, residing there. New Rupin is seated on a lake, and become a considerable place of trade, with a manufactory of cloth. It is also noted for brewers. E. Long. 13. 23. N. Lat. 53. 0.

RUPPIA, in botany: A genus of the tetragynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 15th order, *Inundata*. There is neither calyx nor corolla; but four pedicellated seeds.

RUSCUS, **KNEE-HOLLY**, or *Butcher's Broom*: A genus of the syngenesia order, belonging to the dioecia class of plants; and in the natural method ranking under the 11th order, *Sarmentacea*. The male calyx is hexaphyllous; there is no corolla; the nectarium is central, ovate, and perforated at the top. The female calyx, corolla, and nectarium, are the same as in the male; there is one style, with a trilocular two-seeded berry.

The most remarkable species is the *aculeatus*, or common butcher's broom, common in the woods in many parts of England. It has roots composed of many thick fibres which twine about each other; from which arise several stiff green stalks about three feet high, sending out from their sides several short branches, garnished with stiff, oval, heart-shaped leaves, placed alternately on every part of the stalk, ending with sharp prickly points. The flowers are produced in the middle, on the upper side of the leaves; they are small,

and cut into six parts; of a purple colour, sitting close to the midrib. They appear in June; and the female flowers are succeeded by berries as large as cherries, of a sweetish taste, which ripen in winter; when they are of a beautiful red colour. As this plant grows wild in most parts of England, it is rarely admitted into gardens; but if some of the roots are planted under tall trees in large plantations, they will spread into large clumps; and as they retain their leaves in winter, at that season they will have a good effect. The seeds of this plant generally lie a year in the ground before they vegetate; and the plants so raised are long before they arrive at a size big enough to make any figure, and therefore it is much better to transplant the roots.—The root of this plant is accounted aperient, and in this intention is sometimes made an ingredient in apozems and diet-drinks, for opening slight obstructions of the viscera and promoting the fluid secretions. This plant is used by the butchers for befoms to sweep their blocks. Hucksters place the boughs round their bacon and cheese to defend them from the mice; for they cannot make their way through the prickly leaves.

RUSH, in botany. See **JUNCUS**.

Rush-Candles. See *Rush-CANDLES*.

RUSHWORTH (John), the compiler of some useful collections respecting the affairs of state, was born in Northumberland about the year 1607, and was descended of honourable ancestors. After attending the university of Oxford for some time, he removed to Lincoln's Inn; but the study of law not suiting his genius, he soon deserted it, in order to seek a situation where he might more easily gratify his love for political information. He frequented the meetings of parliament, and wrote down the speeches both of the king and members. During the space of 11 years, from 1630 to 1640, when no parliament was held, he was an attentive observer of the great transactions of state in the star-chamber, the court of honour, and exchequer chamber, when all the judges of England assembled there on cases of great emergency. Nor did he neglect to observe with a watchful eye those events which happened at a distance from the capital. He visited the camp at Berwick, was present at the battle of Newborn, at the treaty of Rippon, and at the great council of York.

In 1640 he was appointed assistant to Henry Elsynge clerk to the house of commons, and thus had the best opportunities of being acquainted with their debates and proceedings. The commons considered him as a person worthy of confidence. In particular, they trusted him with carrying their messages to the king while he remained at York. And when the parliament created Sir Thomas Fairfax their general, Rushworth was appointed his secretary, and discharged the office much to the advantage of his master. When Fairfax resigned his commission, his secretary returned to Lincoln's Inn, and was soon after (in 1651-2) chosen one of the committee that was appointed to deliberate concerning the propriety and means of altering or new-modelling the common law. He was elected one of the representatives for Berwick upon Tweed to the parliament which Richard Cromwell assembled in 1658, and was re-elected by the same town to the parliament which re-elected Charles II. to the crown.

After the Restoration, he delivered to the king several

Ruffi,
Rushworth.

Rushworth.
Russelia.

ral books of the privy-council, which he had preserved in his own possession during the commotions which then agitated the country. Sir Orlando Bridgeman keeper of the great seal chose him his secretary in 1677, an office which he enjoyed as long as Sir Orlando kept the seals. In 1678 he was a third time chosen member for Berwick, and a fourth time in the ensuing parliament in 1679. He was also a member of the parliament which was convened at Oxford. The different offices he had held afforded him favourable opportunities of acquiring a fortune, or at least an independence; yet, whether from negligence or prodigality, he was never possessed of wealth. Having run himself into debt, he was arrested and committed to the King's Bench prison, Southwark, where he lingered for the last six years of his life in the most deplorable condition. His memory and judgment were much impaired, partly by age and partly by the too frequent use of spirituous liquors. He died on the 12th of May 1690.

His "Historical Collections of private Passages in State, weighty Matters in Law, remarkable Proceedings in Parliament," were published in folio at different times. The first part, comprehending the years between 1618 and 1629, appeared in 1659. The copy had been entrusted by Oliver Cromwell to Whitelock, with instructions to peruse and examine it. Upon perusing it, he thought it necessary to make some alterations and additions. The second part was published in 1680; the third in 1692; the fourth and last, which comes down to the year 1648, was published in 1701; and altogether made seven volumes. These underwent a second edition in 1721; and the trial of the earl of Strafford was added, which made the eighth. This work has been much applauded by those who condemn the conduct of Charles I. and accused of partiality by those who favour the cause of that unhappy monarch. One person in particular, Dr John Nelson of Cambridge, in a Collection of the Affairs of State published by the command of Charles II. undertook to prove, "that Rushworth has concealed truth, endeavoured to vindicate the prevailing detractions of the late times, as well as their barbarous actions, and with a kind of rebound to libel the government at second-hand." This accusation seems to be carried too far. His principles indeed led him to show the king and his adherents in an unfavourable light, and to vindicate the proceedings of parliament; yet it cannot justly be affirmed that he has misrepresented or falsified any of the speeches or facts which he has admitted into his collection. Perhaps he may have omitted some papers merely because they were unfavourable to the party which he had espoused; and is therefore not to be considered as an impartial historian who relates the whole truth, but as an honest lawyer, who states all his facts fairly and candidly, but passes over such as are injurious to his client's cause.

RUSSELIA, in botany: A genus of the trigynia order, belonging to the pentandria class of plants. The calyx is five-leaved; the petals five above; the capsule is one-celled and many seeded.

RUSSIA, a very large and powerful kingdom, partly in Europe and partly in Asia, is bounded on the north by the Northern Ocean, or Frozen Sea; on the east it is washed by the Eastern Ocean, and is divided from America by Behring's (formerly Anian) Straits, which are about 73 versts (A) wide. From thence, towards the south, it extends along the chain of the Aleoutskie islands, which approach the north-west coast of America; and from Kamtschatka, towards the south-west, it extends, by a chain of other islands, called Kourilskie islands, as far as Japan; on the south it borders on the Black Sea, on the nations which dwell at the foot of the Caucasian mountains, on a part of Persia, the Caspian Sea, the hordes of Kirghiskaisacki, on Ziungoria, Chinese Mongolia and Daouria (B); and on the west, on the Danish and Swedish Lapland, the Baltic Sea, Courland, Livonia, Lithuania, Poland, and Turkey in Europe.

Russia occupies more than a seventh part of the known continent, and nearly the 26th part of the whole globe. Its greatest extent from west to east, viz. from the $39\frac{1}{4}$ to $207\frac{1}{4}$ degree of longitude, is 168 degrees; and if the islands of the Eastern Ocean be included, it will then be 185; so that the continental length of Russia, viz. from Riga to Tchoukotskoy Nofs, which is the easternmost promontory, will constitute about 8500 versts. The greatest extent of this empire from north to south, that is, from the 78th to $50\frac{1}{4}$ degree of latitude, is $27\frac{1}{4}$ degrees. Hence the breadth of Russia, that is, from the Cape Taymour, which is the north-eastern promontory, to Kiakhta, will constitute about 3200 versts.

The greater part of this empire lies in the temperate zone, and a part of it, viz. that which is beyond the $66\frac{1}{4}$ degree of latitude, lies in the frigid zone; and the whole surface contains above 2,150,000 square versts. There therefore is not at present, and never has been in any period, an empire, the extent of which could be compared to that of Russia. The length and breadth of this immense empire, taken in a straight line, may be thus discovered. Its furthestmost point or spot on the north is the Taymour Cape, which is the most north-eastern promontory in the government of Tobolsk, lying in the 78th degree of latitude; its farthest point on the south is the mouth of the river Soulak, falling into the Caspian Sea in the government of Caucasus, lying in the 43d degree of latitude; its westernmost point is the island of Oesel in the government of Riga, in the $39\frac{1}{4}$ degree of longitude; and the furthestmost point of it on the east is the Tchoukotskoy Nofs, which is the most eastern cape in the government of Irkoutsk, lying in the $207\frac{1}{4}$ degree of longitude.

In ancient times Russia was inhabited by various nations; such as Hunns, Scythians, Sarmatians, Massagettes, Scythians, Cimbri, &c. of whom an account is given under the various detached articles in this work. The origin of the Russians themselves, though not prior to the ninth century, is still covered with almost impenetrable obscurity; partly owing to the ignorance and barbarity of the people, and partly to the

(A) Versta is the usual measure of roads in Russia, 1166 yards and two feet.

(B) Daouria is that extent of land which is traversed by the river Amour. It is so called on account of the Daouri, its ancient inhabitants, who were a race of the Toungeofi or Manjouri.

Russia.
I
Situation
and extent.
Plate
CCCLXIII.

Russia.

mistaken policy which yet prevails in the nation, of suppressing all accounts of their origin, and inquiries into their ancient state and situation; of which we have a remarkable instance in the suppression of a work by professor Muller, intitled *De Originibus Gentis et Nominis Russorum*.

3
Origin of
the Rus-
sians.

According to several authors of credit, the Russians derived their origin from the Slavi or Slavonians, corruptly called the *Sclavonians*, who settled first along the banks of the Volga, and afterwards near the Danube, in the countries named *Bulgaria* and *Hungary*: but being driven from thence by the Romans (whom the Russians call *Wolochers*, or *Wolotaners*), they first removed to the river Borysthenes, or Dneiper, then over-ran Poland, and, as is reported, built the city of Kiow. Afterwards they extended their colonies farther north, to the rivers which run into the *Ilmen* lake, and laid the foundation of the city of Novogorod. The towns of Smolensk and Tjernikow appear also to have been built by them, though the dates of these events cannot be ascertained. The most ancient inhabitants, not only of Russia, but all over Siberia, quite to the borders of China, are called *Tshudi*: for professor Muller, on inquiring in those parts by whom the ancient buildings and sepulchral monuments he saw there, were erected, was everywhere answered, that they were the works of the *Tshudi*, who in ancient times had lived in that country.

In the ninth century, the Scandinavians, that is, the Danes, Norwegians, and Swedes, emigrated from the north, and, crossing the Baltic, went to seek habitations in Russia. They first subdued the Courlanders, Livonians, and Esthonians; and, extending their conquests still farther, they exacted tribute from the Novogorodians, settled kings over them, and traded as far as Kiow, and even to Greece. These new invaders were called *Waregers*; which, according to professor Muller, signifies "sea-faring people;" or, if derived from the old northern word *war*, it signifies "warlike men." To these Waregers the name of *Russes*, or *Russians*, is thought by the most eminent authors to owe its origin; but the etymology of the word itself is entirely uncertain.

4
Russia at
first divided
into a num-
ber of petty
kingdoms.

In the dark ages of which we are speaking, it is pretty certain that Russia was divided among a great number of petty princes, who made war upon each other with the ferocity and cruelty of wild beasts; so that the whole country was reduced to the utmost misery; when Gostomisl, a chief of the Novogorodians, pitying the unhappy fate of his countrymen, and seeing no other method of remedying their calamities, advised them to offer the government of their country to the Waregers. The proposal was readily accepted, and three princes of great abilities and valour were sent to govern them; namely, Ruric, Sincus, and Truwor, generally supposed to have been brothers. The first took up his residence at Ladoga, in the principality of Great Novogorod; the second at Bielo Osero, or the White Lake; and the third kept his court at Iborisk, or, according to others, at a small town, then called *Twertzog*, in the principality of Pleskow. The three brothers reigned amicably, and made considerable additions to their dominions; all of which at length devolved to Ruric by the death of Sincus and Truwor; but what

the conquests of the two brothers were, we have no records to inform us of.

Russia.

Ruric, to his honour, became zealous for the strict administration of justice; and issued a command to all the boyars who possessed territories under him, to exercise it in an exact and uniform manner. To this end, it was necessary there should be general laws. And this naturally leads us to conjecture, that letters were not entirely unknown in his dominions.

The Russian empire continued to flourish till the end of the reign of Wolodomir, who ascended the throne in the year 976. Having settled the affairs of his empire in peace, he demanded in marriage the princess Anne, sister to the Greek emperor Basilus Porphyrogenitus. His suit was granted, on condition that he should embrace Christianity. With this the Russian monarch complied; and that vast empire was thenceforward considered as belonging to the patriarchate of Constantinople. Wolodomir received the name of *Basilus* on the day on which he was baptized; and, according to the Russian annals, 20,000 of his subjects were baptized the same day. Michael Syra, or Cyrus, a Greek, sent by Photius the patriarch of Constantinople, was accepted as metropolitan of the whole country. At the same time, Wolodomir put away all his former wives and concubines, of whom he had upwards of 800, and by whom he had 12 sons, who were baptized on the same day with himself. The idols of paganism were now thrown down; churches and monasteries were erected, towns built, and the arts began to flourish. The Slavonian letters were now first introduced into Russia; and Wolodomir sent missionaries to convert the Bulgarians; but only three or four of their princes came to him and were baptized. These events happened in the year 987.

6
Christiani-
ty introdu-
ced.

Wolodomir called the arts from Greece, cultivated them in the peaceable periods of his reign, and rewarded their professors with generosity, that he might dispel the clouds of ignorance which enveloped his country, call forth the genius of his countrymen, and render them happy. He also founded public schools, and enacted a law concerning the methods of instructing youth, and directing the conduct of the masters appointed to instruct them. He died in 1008, and, contrary to all rules of sound policy and prudence, divided his empire among his 12 sons. The consequence was, that they fell to making war and destroying one another as soon as their father was dead. Suantepolk, one of the brothers, having destroyed and seized upon the dominions of two others, was himself driven out by Jarislaus, and obliged to fly to Boleslaus king of Poland. This brought on a dreadful war, betwixt the Poles and Russians; in which the former were victorious, and the latter lost a great part of their dominions, as has been related under the article *POLAND*.

7
Learning
and the arts
cultivated.

Jarislaus finding himself unable to oppose the king of Poland, now turned his arms against the rest of his brothers, all of whom he dispossessed of their dominions, and seized them for himself. He next attacked the Cossacks, over whom he gained several advantages. After which he ventured once more to try his fortune with Boleslaus: but in this second expedition he was attended with worse success than before; being now reduced to the condition of a vassal and tributary to the

8
A civil war.

Russia.
9
Russia be-
comes tri-
butary to
Poland.

victorious monarch. However, in the reign of Miecslaus II. the successor of Boleslaus, the Russians again shook off the yoke, and a lasting peace was confirmed by the marriage of Miecslaus with the sister of Wolodomir.

Jarislaus now continued to enjoy the empire quietly, and was so much addicted to reading, that he devoted even a part of the night to his studies. He invited men of letters to his court, and caused many Greek books to be translated into the Russian language. It was he that in the year 1019, gave the people of Novogorod several laws, under the title of *Gramota Sou-dinaiia*, to be observed in the courts of justice. These are the first laws that were reduced to writing in Russia; and, what renders them remarkable, is the conformity they have with those of the other northern nations. He founded a public school at Novogorod, where he maintained and educated 300 children at his own expence. His court was the most brilliant of the north, and furnished an asylum to unfortunate princes. He died in 1052; and fell into the same error which his father had committed, by dividing his dominions among his five sons. This produced a repetition of the bloody scenes which had been acted by the sons of Wolodomir; the Poles took the advantage of the distracted state of affairs to make continual inroads and invasions; and the empire continued in the most deplorable situation till the year 1237, when it was totally subdued by the Tartars. We are not informed of any particulars of this remarkable event, farther than that innumerable multitudes of these barbarians, headed by their khan Batto, or Battus, after ravaging great part of Poland and Silesia, broke suddenly into Russia, where they committed the greatest cruelties. Most of the Russian princes, among whom was the great duke George Sevoloditz, were made prisoners, and racked to death; and, in short, none found mercy but such as acknowledged themselves the subjects of the Tartars. The imperious conqueror imposed upon the Russians every thing that is most mortifying in slavery; insisting that they should have no other princes than such as he approved of; that they should pay him yearly a tribute, to be brought by the sovereigns themselves on foot, who were to present it humbly to the Tartarian ambassador on horseback. They were also to prostrate themselves before the haughty Tartar; to offer him milk to drink; and, if any drops of it fell down, to lick them up; a singular mark of servility, which continued near 260 years.

11
The empire
harassed
by internal
dissensions,

George Sevoloditz was succeeded by his brother Michael Sevoloditz Zernigoufski; who opposed the Tartars, but was defeated by them, and lost his life. He left three sons, Feodor, Alexander, and Andrew, whose wars with each other ended in the death of them all. A son of Alexander, and of the same name, was then placed on the throne by the Tartars; and his son Danilow, or Daniel Alexandrovitz, removed his court from Wolodimir to Moscow, where he first assumed the title of *Great duke of Wolodimir and Moscow*. Daniel Alexandrovitz left two sons, Gregory and John; the former of whom, named *Kalita*, from a purse he used always to carry about him filled with money for the poor, ascended the throne; but he was soon assassinated by another prince named *Demetri Michaelovitz*, who was himself put to death for it by the Tartars; and

John, likewise surnamed *Kalita*, was then made czar. This John left three sons, John, Simon, and Andrew; and the eldest of these, commonly called *Ivan Ivanovitz*, was made czar, with the approbation of the Tartars, on whom he was dependent.

During these several reigns, which fill a space of upwards of 100 years, and which all historians have passed over for want of records concerning them, the miseries of a foreign yoke were aggravated by all the calamities of intestine discord and war; whilst the knights of Livonia, or brothers of the short-sword, as they are sometimes called, a kind of military order of religious, on one side, and the Poles on the other, catching at the opportunity, attacked Russia, and took several of its towns, and even some considerable countries. The Tartars and Russians, whose interests were in this case the same, often united to oppose their common enemies; but were generally worsted. The Livonians took Pleskow; and the Poles made themselves masters of Black Russia, the Ukraine, Podolia, and the city of Kiow. Casimir the Great, one of their kings, carried his conquests still farther. He asserted his pretensions to a part of Russia, in right of his relation to Boleslaus duke of Halitz, who died without issue, and forcibly possessed himself of the duchies of Perzemyslia, Halitz, and Luckow, and of the districts of Sanock, Lubackzow, and Trebowla; all which countries he made a province of Poland.

The newly-conquered Russians were ill-disposed to brook the government of the Poles; whose laws and customs were more contrary to their own than those of the Tartars had been. They joined the latter to rid themselves of the yoke; and assembled an army numerous enough to overwhelm all Poland, but destitute of valour and discipline. Casimir, undaunted by this deluge of barbarians, presented himself at the head of a few troops on the borders of the Vistula, and obliged his enemies to retire.

Demetrius Ivanovitz, son of Ivan Ivanovitz, who commanded in Moscow, made frequent efforts to rid himself of the galling yoke. He defeated in several battles Maymay khan of the Tartars; and, when conqueror, refused to pay them any tribute, and assumed the title of *great duke of Muscovy*. But the oppressors of the north returned in greater numbers than before; and Demetrius, at length overpowered, after a struggle of three years, perished with his whole army, which, if we may credit historians, amounted to upwards of 240,000 men.

Basilus Demetrivitz revenged his father's death. He attacked his enemies, drove them out of his dominions, and conquered Bulgaria. He made an alliance with the Poles, whom he could not subdue; and even ceded to them a part of his country, on condition that they should help him to defend the rest against any new incursions of the Tartars. But this treaty was a weak barrier against ambition. The Russians found new enemies in their allies; and the Tartars soon returned.—Basilus Demetrivitz had a son who was called after his name, and to whom the crown ought naturally to have descended. But the father, suspecting his legitimacy, left it to his own brother Gregory, a man of a severe and tyrannical disposition, and therefore hated by the people, who asserted the son's right, and proclaimed him their sovereign. The Tartars took cognizance

of

12
And by ex-
ternal ene-
mies.

13
A great ar-
my cut in
pieces by
the Tartars.

Russia.

of the dispute, and determined it in favour of Basilus; upon which Gregory had recourse to arms, drove his nephew from Moscow to the principality of Uglitz, and forcibly usurped and kept possession of his throne. Upon the death of Gregory, Basilus returned to Moscow; but Andrew and Demetrius, sons of the late usurper, laid siege to that city, and obliged him to retire to the monastery of Troitz, where they took him prisoner, with his wife and son, and put out his eyes: hence the appellation of *jeunoi*, "blind," by which this Basilus is distinguished. The subjects of this unfortunate prince, incensed at the cruel treatment he had received, forced the perpetrators of it to fly to Novogorod, and reinstated their lawful sovereign at Moscow, where he died.

14
John Basilovitz I. retrieves the affairs of Russia.

In the midst of this general confusion, John Basilovitz I. by his invincible spirit and refined policy, became both the conqueror and deliverer of his country, and laid the first foundation of its future grandeur. Observing with indignation the narrow limits of his power at his accession to the throne, after the death of his father Basilus the Blind, he began immediately to revolve within himself the means of enlarging his dominions. Marriage, though he had in reality no regard or inclination for women, seemed to him one of the best expedients he could begin with; and accordingly he demanded and obtained Maria, sister of Michael duke of Twer; whom he soon after deposed, under pretence of revenging the injuries done to his father, and added this duchy to his own territories of Moscow. Maria, by whom he had a son named *John*, who died before him, did not live long; and upon her death he married Sophia, daughter of Thomas Paleologus, who had been driven from Constantinople, and forced to take shelter at Rome, where the pope portioned this princess, in hopes of procuring thereby great advantage to the Romish religion; but his expectations were frustrated, Sophia being obliged to conform to the Greek church after her arrival in Russia. What could induce Basilovitz to seek a consort at such a distance, is nowhere accounted for; unless it be, that he hoped by this means to establish a pretension to the empire of the east, to which her father was the next heir: but however that may be, the Russians certainly owed to this alliance their deliverance from the Tartar yoke. Shocked at the servile homage exacted by those proud victors, her husband going to meet their ambassadors at some distance from the city, and standing to hear what they had to say; whilst they were at dinner, Sophia told him, that she was surprised to find that she had married a servant to the Tartars. Nettled at this reproach, Basilovitz feigned himself ill when the next deputation from the Tartars arrived, and under that pretence avoided a repetition of the stipulated humiliating ceremonial. Another circumstance equally displeasing to this princess was, that the Tartars had, by agreement, within the walls of the palace at Moscow, houses in which their ministers resided; to show their power, and at the same time watch the actions of the great duke. To get rid of these, a formal embassy was sent to the Tartarian khan, to tell him, that Sophia having been favoured with a vision from above, ordering her to build a temple in the place where those houses stood, her mind could not be at ease till she had fulfilled the divine command; and therefore his leave

15
Marries a Greek princess,

16
Who excites him to shake off the Tartar yoke.

was desired to pull them down, and give his people others. The khan consented: the houses within the Kremlin were demolished; and no new ones being provided, the Tartar residents were obliged to leave Moscow; their prince not being able to revenge this breach of promise, by reason of a war he was then engaged in with the Poles. Basilovitz taking advantage of this circumstance, and having in the mean time considerably increased his forces, openly disclaimed all subjection to the Tartars, attacked their dominions, and made himself master of Casan, where he was solemnly crowned with the diadem of that kingdom, which is said to be the same that is now used for the coronation of the Russian sovereigns. The province of Permia, with great part of Lapland and Asiatic Bulgaria, soon submitted to him; and Great Novogorod, a city then so famous that the Russians used to express its vast importance by the proverbial expression of, *Who can resist God and the Great Novogorod?* was reduced by his generals after a seven years siege, and yielded him an immense treasure; no less, say some writers, than 300 cart loads of gold and silver, and other valuable effects. Alexander Witold, waiwode of Lithuania, was in possession of this rich place, from which he had exacted for some years an annual tribute of 100,000 rubles, a prodigious sum for those days and for that country. When it was taken by John Basilovitz, he, the better to secure his conquest, put it under the protection of the Poles, voluntarily rendered himself their tributary for it, and accepted a governor from the hand of their king Casimir, a weak and indolent prince, from whom he well knew he had nothing to fear. The Novogorodians continued to enjoy all their privileges till about two years after; when John, ambitious of reigning without controul, entered their city with a numerous retinue, under pretence of keeping to the Greek faith, he being accused of an intention to embrace the Romish religion; and with the assistance of the archbishop Theophilus, stripped them all of their remaining riches. He then deposed the treacherous prelate, and established over Novogorod new magistrates, creatures of his own; destroying at once, by this means, a noble city, which, had its liberties been protected, and its trade encouraged, might have proved to him an inexhaustible fund of wealth. All the north beheld with terror and astonishment the rapid increase of the victor's power: foreign nations courted his alliance; and the several petty princes of Russia submitted to him without resistance, acknowledging themselves his vassals.

17
His success.

The Poles, however, complained loudly of his late breach of faith in regard to Novogorod, and threatened revenge: upon which Basilovitz, elated with his successes, with the riches he had amassed, and with the weak condition of most of his neighbours, sent a body of troops into Lithuania, and soon became master of several of its towns. Casimir applied for assistance to Matthias king of Hungary: but was answered by this last, that his own foldiers were quite undisciplined; that his auxiliaries had lately mutinied for want of pay; and that it was impossible for him to raise a new army out of the neighbouring countries. The Polish monarch in this distress was obliged to purchase of John a cessation of arms for two years, during which the Muscovite made new accessions to his dominions.

18
Invades Lithuania and obliges the Poles to sue for peace.

The dukes of Servia, whose territories were about 500

¹⁹ ^{Russia.} 500 miles in extent, had long thought themselves ill used by the Lithuanians on account of their religion, which was that of the Greek church; and wanted to withdraw from their subjection to Poland, and put themselves under the protection of Russia. The following accident afforded them the wished-for pretence. Their envoys arriving at Wilna, desired admittance to the king's presence: which being refused, one of them endeavoured to force his way in; but the porter shut the door rudely against him, and in so doing broke one of his fingers. The servant was immediately put to death for this offence: but the Servians, by no means satisfied with that, returned home in great fury, and prevailed upon their countrymen to submit themselves and their country to the Muscovites. Casimir made several attempts to recall them, but to no purpose.

Servia submits to him.

Matthias king of Hungary dying about this time, two of his sons, Uladislaus, then king of Bohemia, and John Albert, contended for the vacant crown. Casimir wanted to give it to the latter, whom he accordingly assisted to the utmost of his power; and to enable him the better so to do, though he was in great want of money as well as men, he purchased a renewal of the truce with the Russians, and thereby gave John Basilovitz time to establish himself in his new acquisitions.

²⁰ Casimir died in the year 1492, and was succeeded on the throne of Poland by his son John Albert, who, totally disregarding the Russians, involved himself unnecessarily in a war with the brave Stephen duke of Moldavia: and though he had at the same time both the Tartars and Turks against him, his propensity to pleasure, and his lascivious disposition, rendered him so indolent, that he not only did not so much as attempt to molest Basilovitz in any of his possessions, but concluded a peace with him on terms very advantageous to the latter; and even entered into a treaty, by which he stipulated not to assist the Lithuanians, though they had chosen his brother Alexander for their duke, in case the Russians should attack them, as it was supposed they would. Alexander thinking to parry the inconveniences of this agreement, and to guard against the designs of his enemies, demanded in marriage Basilovitz's daughter, Helena, by his second wife Sophia, and obtained her. The Lithuanians then flattered themselves with a prospect of tranquillity: but the ambitious czar, for Basilovitz had assumed that title since his conquest of Casan, aiming only at the increase of dominion, soon found a pretence to break with his new allies, by alleging, that Polish Russia, as far as the river Berezina, had formerly belonged to his ancestors, and therefore should be his; and that Alexander, by his marriage-contrast, had engaged to build a Greek church at Wilna for his Russian consort, which he had not done, but on the contrary endeavoured to force the Polish Russians to embrace the religion of the church of Rome. In consequence of this plea, he sent into the territories of his son-in-law, by different ways, three armies, which reduced several places, destroyed the country about Smolensko, and defeated the Lithuanian field-marshal Ostrosky near the river Wedrasch, where he fell unawares into an ambush of the Russians. Alexander raised a new army of Silesians, Bohemians, and Moravians; but they came too late, the Russians having retired with their plunder. Elated by their

²¹ His success in Lithuania.

success against the Lithuanians, they invaded Livonia in the year 1502, with 130,000 men: but Walter Von Plettenberg, grand-master of the knights of the cross, with only 12,000 men, gave them a total overthrow; killing 10,000 of his enemies, with scarce any loss on his own side. Basilovitz dispirited by this defeat, and being then engaged in a war with the Tartars, the Poles, and the city of Pleskow, immediately dispatched an embassy to Plettenberg, and concluded a truce with him for 50 years. At the same time he begged of that general to send to Moscow, that he might see him, one of the *iron-dragoons*, as he called them, who had performed wonders in the late engagement. Von Plettenberg readily complied; and the czar, struck with admiration, rewarded the cuirassier's accomplishments with considerable honours and presents.

²² Russia. Is defeated in Livonia and obliged to retire.

Alexander had been elected king of Poland upon the death of his brother John Albert, which happened in the beginning of this year: but the Poles refused to crown his consort Helena, because she adhered to the Greek religion. Provoked at this affront, and probably still more stimulated by ambition, Basilovitz resolved again to try his fortune with them; and accordingly ordered his son Demetrius, now the eldest, to march against Smolensko, and reduce that city. The young prince did all that could be done: but the vigorous resistance of the besieged, and the arrival of the king of Poland with a numerous army, obliged the Russians to raise the siege and return home; and the czar was glad to make a fresh truce with the Poles for six years, upon the easy terms of only returning the prisoners he had taken. Some writers say, that flying into a violent passion with his son the moment he saw him, and imputing the miscarriage of this expedition to his want of courage or conduct, he gave him a blow which laid him dead at his feet; to which is added, that remorse for this rash action carried his father to his grave: but this account is not confirmed by authors whose authority can be relied on. Certain it is, however, that neither of them long survived this event; and that Demetrius died first: for Sophia, who had gained an absolute ascendant over her husband, and wanted to give the sovereignty to her own children, persuaded him by various artful insinuations to set aside and imprison his grandson Demetrius, the only child of the late John, whom he had by his first wife Maria, and declare her then eldest son, Gabriel, his successor. Age and infirmities had rendered the czar so weak, that he blindly followed the iniquitous advice; but shortly after finding his end approach, he sent for young Demetrius, expressed great repentance for his barbarity towards him, and on his death-bed declared him his lawful successor. He died in November 1505, after a reign of 55 years; leaving behind him an immense territory, chiefly of his own acquiring.

²³ He dies and is succeeded by his son who takes the name of Basilus.

The czar was no sooner dead, than his son Gabriel Ivanovitz, at the instigation of his mother Sophia, put an end to the life of the young Demetrius, by confining him in prison, where he perished with hunger and cold; after which Gabriel was crowned by the name of *Basilus*, and took the title of *czar*, as well as all the other titles belonging to the sovereignty. On his accession to the throne he expected that the Poles would be in confusion about the election of a new sovereign; but his expectations being defeated by their unanimous election

Russia. election of Sigismund I. a prince of a mild and peaceable disposition, he sent an army into Lithuania, and laid siege to Smolensko. The place made a brave resistance, till news arrived that the crown-troops of Poland were coming to their assistance, with the additional aid of 80,000. Crim Tartars; on which the Russians returned home with the utmost precipitation. They were, however, quickly followed by the Poles, who reduced the czar to submit to such terms as they pleased to impose. Basilus remained quiet till he thought himself capable of revenging the injuries he had sustained; after which, pretending to set out upon some other expedition, he marched with a numerous army, and encamped in the neighbourhood of Pleskow, where the Poles, presuming on the late treaty, received him as a friend and ally. But in the mean time the Muscovite priests of the Greek church preached to their hearers concerning the expediency of having a sovereign of their own religion; and brought them to such a height of enthusiasm, that they murdered their magistrates, and opened their gates to the czar, who made them all slaves, and sent them away to different parts, replacing them with Muscovites, the better to secure his conquest. Soon after he took also the city of Smolensko; and the Swedes, alarmed at his rapid progress, desired a prolongation of the truce, at that time subsisting between the two states, for 60 years longer. The duchy of Lithuania was the great object of the designs of Basilus; and to accomplish his design, he ordered Ivan Czeladin, a man of great resolution, and enterprising even to rashness, to march thither with 80,000 men. The army of the Poles did not exceed 35,000 men, but was commanded by a most experienced general. The two armies met on the opposite banks of the Dneiper, near Orsova, and the Poles passed that river in sight of their enemies. Czeladin's officers advised him to fall upon the enemy when about half of them had crossed the river; but that general, too confident of success, replied, that the other half would then run away, and he was determined to gain a complete victory. The Lithuanians began the attack, but were repulsed by the Russians; who imprudently following them, lost an advantageous situation, and found themselves at once exposed to the full fire of the enemy's artillery. The Polish cavalry then rushed in among their sword in hand, and made dreadful havoc; the trembling Russians scarce even attempting to defend themselves. Those who endeavoured to fly, fell into the Dneiper and were drowned; and all the rest, including Czeladin himself, were made slaves.

26 Basilus was at Smolensko when he received the news of this dreadful defeat; on which he immediately fled to Moscow, where his danger increased daily. The Crim-Tartars ravaged his dominions, and the emperor Maximilian, with whom he had been in alliance, deserted him; his troops were utterly defeated in Livonia, where he was obliged to submit to a peace on dishonourable terms; but what these terms were historians do not inform us. In the mean time, the king of Poland stirred up the Tartars to invade Russia, while the Russian monarch in his turn endeavoured to excite them to an invasion of Poland. These barbarians, equally treacherous to both parties, first invaded and ravaged Podolia, a province of Poland; and

then having invaded Russia and defeated the armies of the czar in the year 1521, they poured in thither in such incredible multitudes, that they quickly made themselves masters of Moscow. An army, which had been sent to oppose their progress, was defeated near the river Occa; and the czar's brother Andrew, who commanded it, was the very first who fled. Basilus with great difficulty made his way to Novogorod; so terrified, that he hid himself by the way under a haystack, to avoid a straggling party of the enemy. The Tartars, however, soon obliged him to sign a writing, by which he acknowledged himself their vassal, and promised to pay them a tribute of so much a head for every one of his subjects. Besides this, Machmetgerei, the commander of the Tartars, caused his own statue to be set up at Moscow, as a mark of his sovereignty; compelled Basilus to return to his capital, to bring thither in person the first payment of this tribute, and, as a token of his submission, to prostrate himself before his statue. Machmetgerei then left Moscow, and returned home with an immense booty, and upwards of 80,000 prisoners, who were made slaves, and sold like cattle to the Turks and other enemies of the Christian name. In his way back he attempted to take the city of Rezan; but was repulsed with considerable loss by Iwan Kowen, who commanded in that place for the Russians. Here the Tartar general narrowly escaped with his life, his coat being shot through with a musket-ball; and the Muscovites pulled down his statue, and broke it to pieces as soon as the conquerors had left them.

The Tartars were no sooner gone, than Basilus began to talk in a high strain of the revenge he intended to take of them; but was never able to execute his threats. He died in 1533; and was succeeded by his son Ivan or John Basilovitz, an infant of five years of age.

During the minority of the young prince, his two uncles Andrew and George endeavoured to deprive him of the crown; but their attempts were defeated by the care and activity of his guardians; and the Poles also immediately commenced hostilities, but could make little progress. The new czar, as soon as he entered the 19th year of his age, showed an inclination for rescuing his subjects out of that desperate state of ignorance and barbarism in which they had been hitherto immersed. He sent a splendid embassy to the emperor Charles V. who was then at Augsburg, to desire the renewal of the treaty of friendship which had been concluded with his father Maximilian; and offering to enter into a league with him against the Turks, as enemies to the Christian religion; for his farther information in which, particularly in regard to the doctrine and ceremonies of the Latin church, he requested that his ambassador might be allowed to send from Germany to Russia proper priests to instruct him and his subjects. With these he likewise desired to have some wife and experienced statesmen, able to civilize the wild people under his government; and also, the better to help to polish them, he requested that he would send mechanics and artists of every kind; in return for all which he offered to furnish two tons of gold yearly, for 20 years together, to be employed in the war against the Turks. The emperor readily agreed to the desire of the czar; and the Russian ambassador accordingly en-

Russia

27
Moscow
taken by
the Tar-
tars.

28
Basilus dies
and is suc-
ceeded by
his son
John Basi-
lovitz II.

29
His embas-
sy to
Charles V.

gaged

Russia.
30
The Ger-
man artists
prevented
by the Lu-
beckers
from going
to Russia.

gaged upwards of 300 German artists, who were directed to repair to Lubec, in order to proceed from thence to Livonia. But the Lubeckers, who were very powerful at that time, and aimed at nothing less than the engrossing of the whole commerce of the north, stopped them, and represented strongly to the emperor, in the name of all the merchants in Livonia, the dangerous consequence of thus affording instructions to the Russians, who would soon avail themselves of it to ruin their trade, and distress the subjects of his imperial majesty. The workmen and others intended for Russia were easily prevailed upon to return to their respective homes; and the czar's ambassador was arrested upon his arrival at Lubec, and imprisoned there at the suit of the Livonians: however, he made his escape shortly after; and the czar, though provoked to the last degree at the behaviour of the Lubeckers, was obliged for some time to suspend his resentment.

31
Casan con-
quered by
Basilus, all
except the
capital.

The first enterprise of Basilovitz now was against the Tartars of Casan, who had hitherto been such formidable enemies. In this he was attended with great success; the whole territory was conquered in seven years; but the capital, named also *Casan*, being well fortified and bravely defended, made such resistance as quite disheartened the besiegers, and made them think of abandoning their enterprise. Basilovitz being informed of this, hastened to them with a considerable reinforcement, endeavoured to revive their drooping courage, and exhorted them to push the siege with redoubled vigour. However, the greater part, deaf to all his remonstrances, after loudly insisting upon a peace with the Tartars, and leave to return home, proceeded to mutiny, and fell upon their comrades who were for continuing the war. Basilovitz, alarmed at this event, rushed in among the combatants, and with great difficulty parted them: but neither menaces nor intreaties, nor even a promise of giving them the whole plunder of the city if they took it, could prevail on them to continue the war. Their rage at last prompted them to threaten the life of their sovereign; who, to provide for his own safety, was obliged to make the best of his way to Moscow; and the mutineers, no longer regarding any command, instantly returned thither.

32
His me-
thod of
punishing
a treachery.

Basilovitz, though justly incensed at this insolence, took a method of punishing it which does honour to his humanity. Having selected a guard of 2000 of his best troops, he ordered a great feast, to which he invited his principal nobles and officers, to each of whom, according to the Russian custom, he gave very rich garments. The chief of the seditious were clothed in black velvet; and after the dinner was over, he made a speech to the whole company, setting forth the behaviour of his troops before Casan, their contempt of his commands, and their conspiracy to take away his life: to which he added, that he was doubly sorry to find the instigators of such wickedness among those who were styled, and who ought to be, his faithful counsellors; and that those who knew themselves to be guilty of such atrocious wickedness could not do better than voluntarily to submit themselves to his mercy. Upon this, most of them immediately threw themselves at his feet, and implored his pardon. Some of the most criminal were executed, but the rest were only imprisoned.

Immediately after this punishment of the rebels, Basilovitz marched with a fresh army to re-invest Casan before the Tartars had time to recover themselves. The besieged still made an obstinate defence, and the Russians again began to be dispirited; upon which the czar ordered his pioneers to undermine the walls of the citadel, a practice then quite unknown to the Tartars. This work being completed, he directed his priests to read a solemn mass to the whole army, at the head of which he afterwards spent some time in private prayer, and then ordered fire to be set to the powder, which acted so effectually, that great part of the foundation was immediately blown up, and the Muscovites rushing into the city, slaughtered all before them; while the astonished Tartars, crowding out at the opposite gate, crossed the river Casanka, and fled into the forests. Among the prisoners taken on this occasion were Simeon king of Casan with his queen; both of whom were sent to Moscow, where they were treated with the utmost civility and respect.

34
The capital
of Casan
again be-
sieged and
taken.

Encouraged by this success, Basilovitz invaded the country of Astracan, the capital of which he soon reduced; after which he prepared to revenge himself on the Livonians for their behaviour in stopping the German artists. John Basilovitz I. had concluded a truce with this people for 50 years; which being now expired, Iodocus, archbishop of Dorpt and canon of Munster in Westphalia, sensible of the danger to which he was exposed by the vicinity of the Russians, requested the czar to give him a prolongation of the truce. Basilovitz desired him to choose whether he would have a truce for five years longer, on condition that all the inhabitants of his archbishopric should pay to him the annual tribute of a fifth part of a ducat for each person, which the people of Dorpt had formerly agreed to pay to the grand-dukes of Pleskow; or, for 20 years, on this farther condition that he and the Livonians should rebuild all the Russian churches which had been demolished in their territories at the time of the reformation, and allow his subjects the free exercise of their religion. Iodocus evaded an answer as long as he could: but finding at last that the affair grew serious, he levied a considerable sum from his subjects, and fled with it to Munster, where he resigned his prebend and married a wife. His successor, whose name was *Herman*, and the deputies from Livonia, accepted of the conditions, and swore to observe them; with this additional clause, that the priests of the Romish communion should be exempted from paying tribute.

35
Negotia-
tion with
the Live-
nians.

But though the Livonians swore to the observation of these terms, they were at that very time in treaty with Gustavus Vasa, king of Sweden, to join them in attacking Russia. The king of Sweden very readily complied with their desires; upon which Basilovitz invaded Finland. Gustavus advanced against him with a powerful army; but as neither the Poles nor Livonians gave him any assistance, he was obliged to conclude a treaty with the czar, and soon after to evacuate the country. Finland was at this time governed by William of Furstenberg grand-master of the Livonian knights; and the archbishop of Riga, with some other prelates; between whom a quarrel happened about this time, which soon facilitated the designs of Basilovitz on the country. The archbishop, after attempting

36
Their
treachery

37
State of
Finland.

Russia. tempting to set himself above the grand-master even in civil affairs, and to persecute those who adhered to the confession of Augsburg, chose for his coadjutor in the archbishopric of Riga Christopher duke of Mecklenburg. From the abilities and haughty temper of this lord, the Livonian knights apprehended that they had reason to fear the same fate which had befallen the Teutonic order in Prussia; and the step itself was, besides, unprecedented, and contrary to the established laws of the country. These discontents were heightened by letters said to be intercepted from the archbishop to his brother Albert duke of Prussia, inviting this last totally to suppress the order of Livonian knights, and to secularize their possessions, especially in Finland; so that an open war broke out among the contending parties, and the archbishop was seized and made prisoner. He was, however, soon released through the mediation of the emperor of Germany and other potentates, backed by the powerful preparations of the Prussians to avenge his cause; but in the mean time, the strength of their country being totally exhausted, the Livonians were obliged, instead of preparing for war, to sue to the Czar for peace. Baslovitz replied, that he did not believe their intentions to be sincere while they kept 6000 Germans in pay; and therefore, if they meant to treat of peace, they must begin with dismissing these troops. The Livonians, having no longer any power to resist, did as they were ordered; but it availed them nothing. In 1558 an army of 100,000 Russians entered the district of Dorpt, and laid every thing waste before them with the most shocking cruelty. After this they entered the territories of Riga, where they behaved with equal inhumanity; and having at last satiated themselves with blood and treasure, they retired with an immense booty and a great number of prisoners.

38 Livonia ravaged by the Russians.
The Livonians sue for peace, but the treaty is broken off.
The Livonians, now thoroughly convinced of their own folly in exposing themselves to the resentment of the exasperated Russians, sent ambassadors to sue for peace in good earnest. These offered the Czar a present of 30,000 ducats, and prevailed upon him to grant their nation a truce for four months, during which they returned home to get the money. But in this interval the Livonian governor of the city of Nerva, out of an idle frolic, fired some cannon against Ivanogorod or Russian Nerva, situated on the opposite side of the river, and killed several of the Czar's subjects who were assembled in an open place quite unarmed. The Russians, out of regard to the truce, did not even attempt to make reprisals; but immediately acquainted Baslovitz with what had happened: which so incensed the Czar, that when the Livonian ambassadors arrived, he told them, he looked upon their nation to be a set of perjured wretches, who had renounced all honesty; that they might go back with their money and proposals, and let their countrymen know that his vengeance would soon overtake them.

40 Livonia ravaged a second time.
The ambassadors were scarce arrived in Livonia, when an army of 300,000 Russians entered the district of Nerva, under the command of Peter Sisegaledrii, who had been a famous pirate in the Euxine sea. He took the city of Nerva in nine days, and very speedily made himself master of Dorpt, where he found immense treasures. Several other garrisons, terrified by the approach of such numbers, quitted their posts; so that the Russians became masters of a great part of Livonia almost without

opposition. At last, Gothard Kettler, grand-master of the knights of Livonia, intreated Christian III. king of Denmark to take Riga, Revel, and the countries of Gamlund, Wirrland, and Esthonia, under his protection; but the advanced age of that monarch, the distance of the places, and the want of sufficient power to withstand so potent an adversary, made him decline the offer. However, he assisted them with some money and powder, of which they stood greatly in need. Having then applied, without success, first to the emperor of Germany, and then to the court of Sweden, Kettler put himself under the protection of the Poles, who had hitherto been such formidable enemies to the Russians. In the mean time the latter pursued their conquests; they took the city of Marienburg, laid waste the district of Riga, destroyed Gamlund, and penetrated to the very gates of Revel. Felin, in which was the best artillery of the whole country, became theirs by the treachery of its garrison; and here William of Furstenberg the old grand-master was taken, and ended his days in a prison at Moscow. The distracted situation of the Livonian affairs now induced the bishop of Oesel to sell his bishopric to Ferdinand king of Denmark, who exchanged it with his brother Magnus for a part of Holstein. The districts of Reval and Esthonia put themselves under the protection of Sweden; and then the grand-master, finding himself deserted on all sides, suppressed the order of which he was the chief, and accepted of the duchy of Courland, which he held as a fief of the crown of Poland.

The Czar saw with pleasure the division of Livonia between the Swedes and Poles, which, he rightly judged, would produce quarrels between the two nations, and thus give him the fairer opportunity of seizing the whole to himself. Accordingly, in 1564, the Swedes offered him their assistance against the Poles; but he, judging himself to be sufficiently strong without them, attacked the Poles with his own forces, and was twice defeated, which checked his farther operations in Livonia. In 1569 he entered into a treaty of commerce with England, captain Richard Chancellor having a short time before discovered a passage to Archangel in Russia through the White Sea, by which that empire was likely to be supplied with foreign goods, without the assistance either of Poland or Livonia. To the discoverers of this new passage Baslovitz granted many exclusive privileges; and after the death of queen Mary renewed the alliance with queen Elizabeth, and which has been continued without interruption ever since.

42 A treaty between Russia and England.
In the mean time, however, a prodigious army of Turks and Tartars entered Muscovy, with a design to subdue the whole country. But Zerebrinov, the Czar's general, having attacked them in a defile, put them to flight with considerable slaughter. Then they retired towards the mouth of the Volga, where they expected a considerable reinforcement; but being closely pursued by the Russians and Tartars in alliance with them, they were again defeated and forced to fly towards Azov on the Black Sea. But when they came there, they found the city almost entirely ruined by the blowing up of a powder magazine. The Russians then attacked their ships there, took some, and sunk the rest; by which means almost the whole army perished with hunger or the sword of the enemy.

From this time the empire of Russia became so formidable

Russia.

44
Moscow taken and burnt by the Tartars.

45
War with Sweden and Poland.

46
Death of Basilovitz.

midable, that none of the neighbouring nations could hope to make a total conquest of it. The Poles and Swedes indeed continued to be very formidable enemies; and, by the instigation of the former, the Crime Tartars, in 1571, again invaded the country with an army of 70,000 men. The Russians, who might have prevented their passing the Volga, retired before them till they came within 18 miles of the city of Moscow, where they were totally defeated. The Czar no sooner heard this news than he retired with his most valuable effects to a well-fortified cloyster; upon which the Tartars entered the city, plundered it, and set fire to several churches. A violent storm which happened at the same time soon spread the flames all over the city; which was entirely reduced to ashes in six hours, though its circumference was upwards of 40 miles. The fire likewise communicated itself to a powder-magazine at some distance from the city; by which accident upwards of 50 rods of the city wall, with all the buildings upon it, were destroyed; and, according to the best historians, upwards of 120,000 citizens were burnt or buried in the ruins, besides women, children, and foreigners. The castle, however, which was strongly fortified, could not be taken; and the Tartars hearing that a formidable army was coming against them under the command of Magnus duke of Holstein, whom Basilovitz had made king of Livonia, thought proper to retire. The war, nevertheless, continued with the Poles and Swedes; and the Czar being defeated by the latter after some trifling success, was reduced to the necessity of suing for peace. But the negotiations being somehow or other broken off, the war was renewed with the greatest vigour. The Livonians, Poles, and Swedes, having united in a league together against the Russians, gained great advantages over them; and, in 1579, Stephen Battori, who was then raised to the throne of Poland, levied an army expressly with a design of invading Russia, and of regaining all that Poland had formerly claimed, which indeed was little less than the whole empire. As the Poles understood the art of war much better than the Russians, Basilovitz found his undisciplined multitudes unable to cope with the regular forces of his enemies: and their conquests were so rapid, that he was soon obliged to sue for peace: which, however, was not granted; and it is possible that the number of enemies which now attacked Russia might have overcome the empire entirely, had not the allies grown jealous of each other; the consequence of which was, that in 1582 a peace was concluded with the Poles, in which the Swedes were not comprehended. However, the Swedes finding themselves unable to effect any thing of moment after the desertion of their allies, were fain to conclude a truce; shortly after which the Czar, having been worsted in an engagement with the Tartars, died in the year 1584.

This great prince was succeeded by his son Theodore Ivanovitz; a man of such weak understanding, that he was totally unfit for government. Under him, therefore, the Russian affairs fell into confusion; and Boris Gudenov, a nobleman whose sister Theodore had married, found means to assume all the authority. At last, unable to bear even the name of a superior, he resolved to usurp the throne. For this purpose he caused the Czar's brother Demetrius, at that time only nine years of age, to be assassinated; and afterwards, knowing that no trust could be put in an assassin, he

caused him also to be murdered lest he should divulge the secret. In 1597 the Czar himself was taken ill and died, not without great suspicion of his being poisoned by Gudenov; of which indeed the Czarina was so well convinced, that she would never afterwards speak to her brother.

With Theodore ended the line of Ruric, who had governed the empire of Russia for upwards of 700 years. Boris, who in reality was possessed of all the power, and would indeed have suffered nobody else to reign, artfully pretended to be unwilling to accept the crown, till compelled to it by the intreaties of the people; and even then he put the acceptance of it on the issue of an expedition which he was about to undertake against the Tartars. The truth of the matter, however, was, that no Tartar army was in the field, nor had Boris any intention of invading that country; but by this pretence he assembled an army of 500,000 men, which he thought the most effectual method of securing himself in his new dignity. In 1600 he concluded a peace with the Poles, but resolved to continue the war against the Swedes; however, being disappointed in some of his attempts against that nation, he entered into an alliance with the Swedish monarch, and even proposed a match between the king's brother and his daughter. But while these things were in agitation, the city of Moscow was desolated by one of the most dreadful famines recorded in history. Thousands of people lay dead in the streets and highways, with their mouths full of hay, straw, or even the most filthy things which they had been attempting to eat. In many houses the fattest person was killed in order to serve for food to the rest. Parents were said to have eaten their children, and children their parents, or to have sold them to buy bread. One author (Petrius) says, that he himself saw a woman bite several pieces out of a child's arm as she was carrying it along; and captain Margaret relates, that four women having ordered a peasant to come to one of their houses, under pretence of paying him for some wood, killed and eat up both him and his horse. This dreadful calamity lasted three years, notwithstanding all the means which Boris could use to alleviate it; and in this time upwards of 500,000 people perished in the city.

In 1604 a young man appeared, who pretended to be Demetrius, whom Boris had caused to be murdered, as we have already seen. Being supported by the Poles, he proved very troublesome to Boris all his lifetime; and after his death deprived Theodore Borissovitz, the new Czar, of the empire; after which he ascended the throne himself, and married a Polish princess. However, he held the empire but a short time, being killed in an insurrection of his subjects; and the unhappy Czarina was sent prisoner to Jaroslaw.

After the death of Demetrius, Zuski, who had conspired against him, was chosen Czar; but rebellions continually taking place, and the empire being perpetually harassed by the Poles and Swedes, in 1610 Zuski was deposed, and Uladisslaus son of Sigismund king of Poland was elected. However, the Poles representing to Sigismund, that it would be more glorious for him to be the conqueror of Russia, than only the father of its sovereign, he carried on the war with such fury, that the Russians in despair fell upon the Poles, who resided in great numbers at Moscow. The Poles being well

Russia.

47
Extinction of the line of Ruric.

48
Dreadful famine at Moscow.

49
Uladisslaus the king of Poland's son elected Czar.

Russia. armed and mostly soldiers, had greatly the advantage; however, they were on the point of being oppressed by numbers, when they fell upon the most cruel method of ensuring their success that could be devised. This was by setting fire to the city in several places; and while the distressed Russians ran to save their families, the Poles fell upon them sword in hand. In this confusion upwards of 100,000 people perished; but the event was, that the Poles were finally driven out, and lost all footing in Russia.

50 The Poles were finally expelled. The expulsion of the Poles was succeeded by the election of Theodorovitz Romanov, a young nobleman of 17 years of age, whose posterity, till the accession of the present Empress, continued to enjoy the sovereignty. He died in 1646, and was succeeded by his son Alexis; whose reign was a continued scene of tumult and confusion, being harassed on all sides by external enemies, and having his empire perpetually disturbed by internal commotions.

51 The sources of these commotions were found in the multiplicity and inconsistency of the laws at that period, and in the jarring claims of the nobles on the borders. An *emanny ukase*, or personal order, which is an edict of the sovereign, signed with his own hand, is the only law of Russia. These edicts are as various as the opinions, prejudices, passions, or whims of men; and in the days of Alexis they produced endless contentions. To remedy this evil, he made a selection, from all the edicts of his predecessors, of such as had been familiarly current for a hundred years; presuming that those either were founded in natural justice, or during so long a currency had formed the minds of the people to consider them as just. This digest, which he declared to be the common law of Russia, and which is prefaced by a sort of institute, is the standard law-book at this day known by the title of the *Ulogeniè* or *Selection*; and all edicts prior to it were declared to be obsolete. He soon made his *novella*, however, more bulky than the *Ulogeniè*; and the additions by his successors are beyond enumeration. This was undoubtedly a great and useful work; but Alexis performed another still greater.

52 Though there are many courts of judicature in this widely extended empire, the emperor has always been lord paramount, and could take a cause from any court immediately before himself. But as several of the old nobles had the remains of principalities in their families, and held their own courts, the sovereign or his ministers, at a distance up the country, frequently found it difficult to bring a culprit out of one of these hereditary feudal jurisdictions, and try him by the laws of the empire. This was a very disagreeable limitation of imperial power; and the more so, that some families claimed even a right to repledge. A lucky opportunity offered of settling this dispute; and Alexis embraced it with great ability.

53 Some families on the old frontiers were taxed with their defence, for which they were obliged to keep regiments on foot; and as they were but scantily indemnified by the state, it sometimes required the exertion of authority to make them keep up their levies. When the frontiers, by the conquest of Casan, were far extended, those gentlemen found the regiments no longer burdensome, because by the help of false musters, the former scanty allowance much more than reimbursed them for the expence of the establishment. The conse-

quence was, that disputes arose among them about the right of guarding certain districts, and law-suits were necessary to settle their respective claims. These were tedious and intricate. One claimant showed the order of the court, issued a century or two back, to his ancestor for the marching of his men, as a proof that the right was then in his family. His opponent proved, that his ancestors had been the real lords of the marches; but that, on account of their negligence, the court had issued an *emanny ukase* to the other, only at that particular period. The emperor ordered all the family archives to be brought to Moscow; and all documents on both sides to be collected. A time was set for the examination; a fine wooden court-house was built; every paper was lodged under a good guard; the day was appointed when the court should be opened and the claims heard; but that morning the house, with all its contents, was in two hours consumed by fire. The emperor then said, "Gentlemen, henceforward your ranks, your privileges, and your courts, are the nation's, and the nation will guard itself. Your archives are unfortunately lost, but those of the nation remain. I am the keeper, and it is my duty to administer justice for all and to all. Your ranks are not private, but national; attached to the services you are actually performing. Henceforward Colonel Buturlin (a private gentleman) ranks before Captain Viazemsky (an old prince)."

This constitution, which established the different ranks of Russia as they remain to this day, is by Voltaire ascribed to Peter: but it was the work of Alexis; who, when the situation of himself and his country is considered, must be allowed to have been a great and a good man. He died in 1676, and was succeeded by his son Theodore Alexiovitz; who after an excellent reign, during the whole of which he exerted himself to the utmost for the good of his subjects, died in 1682, having appointed his brother Peter I. commonly called *Peter the Great*, his successor. See PETER I.

Theodore had another brother named John; but as he was subject to the falling-sickness, the Czar had preferred Peter, though very young, to the succession. But through the intrigues of the princess Sophia, sister to Theodore, a strong party was formed in favour of John; and soon after both John and Peter were proclaimed sovereigns of Russia under the administration of Sophia herself, who was declared regent. However, this administration did not continue long; for the princess regent having conspired against Peter, and having the misfortune to be discovered, was confined for life in a convent. From this time also John continued to be only a nominal sovereign till his death, which happened in 1696, Peter continuing to engross all the power.

It is to this emperor that Russia is universally allowed to owe the whole of her present greatness. The private character of Peter himself seems to have been but very indifferent. Though he had been married in his eighteenth year to a young and beautiful princess, he was not sufficiently restrained by the solemn ties of wedlock; and he was besides so much addicted to feasting and drunkenness, the prevailing vice of his country, that nobody could have imagined him capable of effecting the reformation upon his subjects which he actually accomplished. In spite of all disadvantages, however,

Russia. he applied himself to the military art and to civil government. He had also a very singular natural defect, which, had it not been conquered, would have rendered him for ever incapable of accomplishing what he afterwards did. This was a vehement dread of water; which is thus accounted for. When he was about five years of age, his mother went with him in a coach, in the spring-season; and passing over a dam where there was a considerable water-fall, whilst he lay asleep in her lap, he was so suddenly awaked and frightened by the rushing of the water, that it brought a fever upon him; and after his recovery he retained such a dread of that element, that he could not bear to see any standing water, much less to hear a running stream. This aversion, however, he conquered by jumping into water; and afterwards became very fond of that element.

57
He removes the defects of his education;

Being ashamed of the ignorance in which he had been brought up, he learned almost of himself, and without a master, enough of the High and Low Dutch languages to speak and write intelligibly in both. He looked upon the Germans and Hollanders as the most civilized nations; because the former had already erected some of those arts and manufactures in Moscow, which he was desirous of spreading throughout his empire; and the latter excelled in the art of navigation, which he considered as more necessary than any other. During the administration of the princess Sophia, he had formed a design of establishing a maritime power in Russia; which he accomplished by the means which we have recorded in his life.

58
And is successful in an expedition against the Turks.

Having reformed his army, and introduced new discipline among them, he led his troops against the Turks; from whom, in 1696, he took the fortress of Azov, and had the satisfaction to see his fleet defeat that of the enemy. On his return to Moscow were struck the first medals which had ever appeared in Russia. The legend was, "PETER THE FIRST, the august emperor of Russia." On the reverse was Azov, with these words, *Victorious by fire and water.* Notwithstanding this success, however, Peter was very much chagrined at having his ships all built by foreigners; having besides as great an inclination to have an harbour on the Baltic as on the Euxine Sea. These considerations determined him to send some of the young nobility of his empire into foreign countries, where they might improve. In 1697 he sent 60 young Russians into Italy; most of them to Venice, and the rest to Leghorn, in order to learn the method of constructing their galleys. Forty more were sent out by his direction for Holland, with an intent to instruct themselves in the art of building and working large ships: others were appointed for Germany, to serve in the land-forces, and to learn the military discipline of that nation. At last he resolved to travel through different countries in person, that he might have the opportunity of profiting by his own observation and experience. Of this journey we

60
And makes the tour of Europe himself.

have given a short account elsewhere; and shall here only add, that in executing his great design, he lived and worked like a common carpenter. He laboured hard at the forges, rope-yards, and at the several mills for the sawing of timber, manufacturing of paper, wire-drawing, &c. In acquiring the art of a carpenter, he began with purchasing a boat, to which he made a mast himself, and by degrees he executed every part of the construction of a ship.

Besides this, Peter frequently went from Sweden to Amsterdam, where he attended the lectures of the celebrated Ruysch on anatomy. He also attended the lectures of burgomaster Witfen on natural philosophy. From this place he went for a few days to Utrecht, in order to pay a visit to King William III. of England; and on his return sent to Archangel a 60 gun ship, in the building of which he had assisted with his own hands. In 1698 he went over to England, where he employed himself in the same manner as he had done in Holland. Here he perfected himself in the art of ship-building; and having engaged a great number of artificers, he returned with them to Holland; from whence he set out for Vienna, where he paid a visit to the emperor; and was on the point of setting out for Venice to finish his improvements, when he was informed of a rebellion having broken out in his dominions. This was occasioned by the superstition and obstinacy of the Russians, who having an almost invincible attachment to their old ignorance and barbarism, had resolved to dethrone the Czar on account of his innovations. But Peter arriving unexpectedly at Moscow, quickly put an end to their machinations, and took a most severe revenge on those who had been guilty. Having then made great reformatations in every part of his empire, in 1700 he entered into a league with the kings of Denmark and Poland against Charles XII. of Sweden. The particulars of this famous war are related under the article SWEDEN. Here we shall only observe, that, from the conclusion of this war, Sweden ceased not only to be a formidable enemy to Russia, but even lost its political consequence in a great measure altogether.

61
Is obliged by a rebellion to return to his own dominions.

62
His war with Sweden.

Peter applied himself to the cultivation of commerce, arts, and sciences, with equal assiduity as to the pursuits of war; and he made such acquisitions of dominion even in Europe itself, that he may be said, at the time of his death, to have been the most powerful prince of his age. He was unfortunate in the Czarovitz his eldest son, whom he contrived to get rid of by the forms of justice (see PETER I. note B), and then ordered his wife Catharine to be crowned with the same magnificent ceremonies as if she had been a Greek empress, and to be recognised as his successor; which she accordingly was, and mounted the Russian throne upon the decease of her husband. She died, after a glorious reign, in 1727, and was succeeded by Peter II. a minor, son to the Czarovitz. Many domestic revolutions happened in Russia during the short reign of this prince; but none was more remarkable than the disgrace and exile of Prince Menzikoff, the favourite general in the two late reigns, and esteemed the richest subject in Europe. Peter died of the small-pox in 1730.

63
His assiduous spirit improved.

64
He settled the crown on his wife Catharine I.

Notwithstanding the despotism of Peter the Great and his wife, the Russian senate and nobility, upon the death of Peter II. ventured to set aside the order of succession which they had established. The male issue of Peter was now extinguished; and the duke of Holstein, son to his eldest daughter, was by the destination of the late empress intitled to the crown: but the Russians, for political reasons, filled their throne with Anne duchess of Courland, second daughter to John, Peter's eldest brother; though her elder sister the duchess of Mecklenburgh was alive. Her reign was extremely prosperous; and though she accepted of the crown under

65
Anne duchess of Courland called the throne.

Russia

der limitations that some thought derogatory to her dignity, yet she broke them all, asserted the prerogative of her ancestors, and punished the aspiring Dolgorucki family, who had imposed upon her limitations, with a view, as it is said, that they themselves might govern. She raised her favourite Biron to the duchy of Courland; and was obliged to give way to many severe executions on his account. Upon her death in 1740, John, the son of her niece the princess of Mecklenburgh, by Antony Ulric of Brunswick Wolfenbittel, was, by her will, intitled to the succession: but being no more than two years old, Biron was appointed to be administrator of the empire during his nonage. This destination was disagreeable to the princess of Mecklenburgh and her husband, and unpopular among the Russians. Count Munich was employed by the princess of Mecklenburgh to arrest Biron, who was tried, and condemned to die, but was sent in exile to Siberia.

66

Elizabeth daughter of Peter I. obtains the crown.

The administration of the princess Anne of Mecklenburgh and her husband was, upon many accounts, but particularly that of her German connections, disagreeable not only to the Russians, but to other powers of Europe; and notwithstanding a prosperous war they carried on with the Swedes, the princess Elizabeth, daughter by Catharine to Peter the Great, formed such a party, that in one night's time she was declared and proclaimed empress of the Russias; and the princess of Mecklenburgh, her husband, and son, were made prisoners.

67

Her reign uncommonly glorious.

Elizabeth's reign may be said to have been more glorious than that of any of her predecessors, her father excepted. She abolished capital punishments, and introduced into all civil and military proceedings a moderation till her time unknown in Russia: but at the same time she punished the counts Munich and Osterman, who had the chief management of affairs during the late administration, with exile. She made peace with Sweden; and settled the succession to that crown, as well as to her own dominions, upon the most equitable foundation. Having gloriously finished a war, which had been stirred up against her with Sweden, she replaced the natural order of succession in her own family, by declaring the duke of Holstein-Gottorp, who was descended from her elder sister, to be her heir. She gave him the title of grand duke of Russia; and soon after her accession to the throne, she called him to her court; where he renounced the succession to the crown of Sweden, which undoubtedly belonged to him, embraced the Greek religion, and married a princess of Anhalt-Zerbst, by whom he had a son, who is now heir to the Russian empire.

Few princes have had a more uninterrupted career of glory than Elizabeth. She was completely victorious over the Swedes. Her alliance was courted by Great Britain at the expence of a large subsidy; but many political, and some private reasons, it is said, determined her to take part with the house of Austria against the king of Prussia in 1756. Her arms alone gave a turn to the success of the war, which was in disfavour of Prussia, notwithstanding that monarch's amazing abilities both in the field and cabinet. Her conquests were such as portended the entire destruction of the Prussian power, which was perhaps saved only by her critical death on January 5. 1762.

Elizabeth was succeeded by Peter III. grand prince

of Russia and duke of Holstein; a prince whose conduct has been variously represented. He mounted the throne possessed of an enthusiastic admiration of his Prussian majesty's virtues; to whom he gave peace, and of whose principles and practices he seems to have adopted as the directories of his future reign. He might have surmounted the effects even of those peculiarities, unpopular as they then were in Russia; but it is said, that he aimed at reformatations in his dominions, which even Peter the Great durst not attempt; and that he even ventured to cut off the beards of his clergy. He was certainly a weak man, who had no opinions of his own, but childishly adopted the sentiments of any person who took the trouble to teach him. His chief amusement was buffoonery; and he would sit for hours looking with pleasure at a merry-andrew singing drunken and vulgar songs. He was a stranger to the country, its inhabitants, and their manners; and suffered himself to be persuaded by those about him, that the Russians were fools and beasts unworthy of his attention, except to make them, by means of the Prussian discipline, good fighting machines. These sentiments regulated his whole conduct, and prepared the way for that revolution which improprieties of a different kind tended to hasten.

Russia.

68

Character of her successor Peter III.

Becoming attached to one of the Vorontzoff ladies, sister to the princess Dashkoff, he disgusted his wife, who was then a lovely woman in the prime of life, of great natural talents and great acquired accomplishments; whilst the lady whom he preferred to her was but one degree above an idiot. The princess Dashkoff, who was married to a man whose genius was not superior to that of the emperor, being *dame d'honneur* and lady of the bedchamber, had of course much of the empress's company. Similarity of situations knit these two illustrious personages in the closest friendship. The princess being a zealous admirer of the French *economistes*, could make her conversation both amusing and instructive. She retailed all her statistical knowledge; and finding the empress a willing hearer, she spoke of her in every company as a prodigy of knowledge, judgment, and philanthropy. Whilst the emperor, by his buffoonery and attachment to foreign manners, was daily incurring more and more the odium of his subjects, the popularity of his wife was rapidly increasing; and some persons about the court expressed their regret, that so much knowledge of government, such love of humanity, and such ardent wishes for the prosperity of Russia, should only furnish conversations with Catharina Romanovna*. The empress and her favourite did not let these expressions pass unobserved; they continued their studies in concert; and whilst the former was employed on her famous code of laws for a great empire, the latter always reported progress, till the middling circles of Moscow and St Petersburg began to speak familiarly of the blessings which they might enjoy if these speculations could be realized.

70

Meanwhile Peter III. was giving fresh cause of discontent. He had recalled from Siberia count Munich, who was indeed a sensible, brave, and worthy man; but as he was smarting under the effects of Russian despotism, and had grounds of resentment against most of the great families, he did not much discourage the emperor's unpopular conduct, but only tried to moderate it and give it a system. Peter, however, was impatient.

He

Russia. He publicly ridiculed the exercise and evolutions of the Russian troops; and hastily adopting the Prussian discipline, without digesting and fitting it for the constitution of his own forces, he completely ruined himself by disgusting the army.

71
They are easily gained over to the party of Catharine.

What he lost was soon and easily gained by the emissaries of Catharine. Four regiments of guards, amounting to 8000 men, were instantly brought over by the three brothers Orloff, who had contrived to ingratiate themselves with their officers. The people at large were in a state of indifference, out of which they were roused by the following means. A little manuscript was handed about, containing principles of legislation for Russia, founded on natural rights, and on the claims of the different classes of people which had insensibly been formed, and become so familiar as to appear natural. In that performance was proposed a convention of deputies from all the classes, and from every part of the empire, to converse, but without authority, on the subjects of which it treated, and to inform the senate of the result of their deliberations. It passed for the work of her majesty, and was much admired.

72
Who then stood high in the public estimation.

While Catharine was thus high in the public esteem and affection, the emperor took the alarm at her popularity, and in a few days came to the resolution of confining her for life, and then of marrying his favourite. The servants of that favourite betrayed her to her sister, who imparted the intelligence to the empress. Catharine saw her danger, and instantly formed her resolution. She must either tamely submit to perpetual imprisonment, and perhaps a cruel and ignominious death, or contrive to hurl her husband from his throne. No other alternative was left her; and the consequence was what undoubtedly was expected. The proper steps were taken; folly fell before abilities and address, and in three days the revolution was accomplished.

73
A revolution in her favour quickly accomplished.

When the emperor saw that all was lost, he attempted to enter Cronstadt from Oranienbaum, a town on the gulph of Finland, 39 versts, or near 26 miles from Petersburg. The sentinels at the harbour presented their muskets at the barge; and though they were not loaded, and the men had no cartridges, he drew back. The English sailors called from ship to ship for some person to head them, declaring that they would take him in and defend him; but he precipitately withdrew. Munich received him again at Oranienbaum, and exhorted him to mount his horse and head his guards, swearing to live and die with him. He said, "No: I see it cannot be done without shedding much of the blood of my brave Holsteinians. I am not worthy of the sacrifice." The revolution was settled, and Catharine declared *autocratrix*. The crown was said to be

pressed upon her, and her son was proclaimed her heir, and as such great duke of all the Russias.

Russia.

She behaved with magnanimity and moderation; retained Munich; even pardoned countess Vorontzoff the emperor's favourite; and afterwards, on her marriage with Mr Paulotsky, made a handsome settlement on them. She allowed the expectations of golden days and a philosophical government to become the subject of fashionable conversation; and the princeps Dashkoff(c) was completely happy. The convention of deputies was even resolved on; and as they were not to be elected by the people, except here and there for the show, Prince Galitzin and Count Panin, whom she had completely gained over, and who had the greatest abilities of any Russians about court, were at immense pains in appointing a proper set. In the mean time, a great number of showy patriotic projects were begun. A grave English clergyman was invited over to superintend the institution of schools for civil and moral education; and the empress was most liberal in her appointments. This institution failed, however, to produce the effects expected from it. The clergyman appointed, though a most excellent character and real philanthropist, had views too contracted for the sphere in which he was placed; and Mr Betskoy, the Russian *Mecenas*, to whom the empress referred him for instructions, preferred declamation, and stage-playing, and ballets, to all other accomplishments.

74
Her magnanimous and moderate behaviour.

75
She instituted schools.

In the mean time, elegance of all kinds was introduced before the people were taught the principles of morals. The nobles were sent travelling; and as the Russians more easily acquire foreign languages than the people of most other nations, have great civility without flippancy, and in general understand play, these travellers were everywhere well received, especially at Paris, where reasons of state contributed not a little to procure to them that attention with which they were treated. They were ravished with the manners of foreign courts, and imported fashions and fineries without bounds. The sovereign turned all this to her own account, by encouraging a dissipation which rendered court favours necessary, and made the people about her forget their Utopian dreams.

76
And sends the nobles a travelling.

The convention of deputies at last assembled in the capital. The empress's book of instructions (D) came forth; and by some great things were doubtless expected. The most consequential of the deputies were privately instructed to be very cautious, and informed that sue. carriages and guards were ready for Siberia. There was a grand procession at their presentation. Each had the honour of kissing her majesty's hand and receiving a gold medal. They met in form to recognise one another,

77
Convention of deputies assembled, and the issue.

(c) This lady, during the progress of the revolution, certainly acted either from the most disinterested patriotism or the most generous friendship. She might have taken part with the emperor, and directed the counsels of the empire; for her sister, on whom he deposed, acknowledged her superiority, and wanted nothing but pleasure. Between them they could easily have governed such a man as Peter III. but Catharine Romanova was a theoretical enthusiast, who loved the empress because she thought her a philosopher and philanthropist; and perhaps she might entertain hopes of directing the conduct of Catharine II. as she had formerly assisted her in her patriotic studies.

(D) It is intitled, *Instructions for the Deputies to consult about a New Code of Laws*, &c. and is a very respectable work, which does honour to the empress, by whom it was undoubtedly composed.

Russia. other, then parted, and have never met since. The thing melted away without notice; and the Princess Dashkoff was handsomely given to understand, that her counsels were no longer necessary, and that she could not do better than take the amusements of the tour of Europe. She was liberally supplied, and has ever since been treated with great kindness, but kept amused with something very different from legislation.

78 In the mean time, many patriotic things were really done. Taxes were frequently remitted where they were burthen some. Every person was declared free who had served government without pay for two years. No man was allowed to send boors from his cultivated estates to his mines in Siberia, nor to any distant estates, but for the purposes of agriculture. Many colonies of German peasants were in various places settled on the crown-lands, to teach the natives the management of the dairy; a branch of rural economy of which the Russians were till that period so completely ignorant, that there is not in their language an appropriated word for *butter*, or *cheese*, or even for *cream*.

The Russians hoped to be likewise instructed in agriculture; but the colonists were poor and ignorant; and this part of the project came to nothing, like the great national schools. Other improvements however took place in favour of commerce; for all barriers were removed, and goods suffered to pass through the empire duty-free. The empress with great liberality encouraged the introduction of arts and manufactures. An academy was instituted for sculpture, painting, and architecture, &c. a magnificent and elegant building was erected for it, and many élèves supported in it at the expence of the crown. Several very promising youths have been educated in that academy; but as the Russians are childishly fond of snery, and cannot be persuaded that any thing fine was ever done by their own countrymen, the students are all, on leaving the academy, suffered to starve.

79 The empress, who has a very just taste in architecture, has herself designed several buildings equally useful and ornamental to her capital (see NEVA and PETERSBURGH); and while she has thus diligently cultivated the arts of peace, she has not neglected those of war. She put her fleets on the most respectable footing, and procured a number of British officers to instruct her seamen in the science of naval tactics. By land, her successes against the Turks, the Swedes, and the Poles (see TURKEY, SWEDEN, and POLAND), compel us to believe, that her troops are better disciplined, and her generals more skilful, than any whom the greatest of her predecessors could bring into the field; and perhaps it is not too much to say, that the empire of Russia, though the people are but just emerging from a state of barbarism, is at this day the most powerful in Europe.

81 Russia is divided into two great parts by a range of mountains called *Oural*, or the *Beli*, which, through the whole breadth of it, form one continual uninterrupted barrier, dividing Siberia from the remaining Russia.—That part of Russia which lies on this side of the Oural mountains presents a very extensive plain verging westward by an easy descent. The vast extent of this plain has a great variety of different climates, soils, and products. The northern part of it is very woody,

Russia. marshy, and but little fit for cultivation, and has a sensible declivity towards the White and the Frozen Seas. The other part of this vast plain includes the whole extent along the river Volga as far as the deserts, extending by the Caspian and the Azov Seas, and constitutes the finest part of Russia, which in general is very rich and fruitful, having more arable and meadow land than wood, marshes, or barren deserts.

The part lying on the other side of the Oural mountains, known by the name of Siberia, is a flat tract of land of considerable extent, declining imperceptibly towards the Glacial Sea, and equally by imperceptible degrees rising towards the south, where at last it forms a great range of mountains, constituting the borders of Russia on the side of China. Between the rivers Irtysh, Obè, and the Altay mountains, there is a very extensive plain, known by the name of *Barabinskaya Stepe*, viz. the deserts of Baraba, the northern part of which is excellent for agriculture; but the southern part, on the contrary, is a desert full of sands and marshes, and very unfit for cultivation. Between the rivers Obè and Enissey there is more woodland than open ground; and the other side of the Enissey is entirely covered with impervious woods, as far as the lake Baical; but the soil is fruitful everywhere; and wherever the trouble has been taken of clearing it of the wood, and of draining it from unnecessary water, it proves to be very rich, and fit for cultivation; and the country beyond the Baical is surrounded by ridges of high stony mountains. Proceeding on farther towards the east, the climate of Siberia becomes by degrees more and more severe, the summer grows shorter, the winter longer, and the frosts prove more intense.

82 With respect to the variety of climates, as well as Variety of the produce of the earth, Russia naturally may be divided into three regions or divisions, viz. into the northern, middle, and southern divisions.

These were about 20 years ago subdivided into different governments, for the better administration of justice.

The northern division, beginning from the 57th degree of latitude, extends to the end of the Russian dominions on the north, and includes the governments of St Petersburg, Riga, Revel, Vyborg, Pïcov, Novogorod, Tver, Olonetz, Archangel, Vologda, Yaroslavl, Kostroma, Viatka, Perme, and Tobolsk. The middle division is reckoned from the 57th to the 50th degree of latitude, and includes the governments of Moscow, Smolensk, Polatsk, Moghilev, Tchernigov, Novogorod-Sieverskoy, Kharkov, Voronez, Kourisk, Orel, Kalouga, Toola, Riazane, Vladimir, Niznei-Novogorod, Tambov, Saratov, Penza, Sinbirsk, Kazane, Oufa, Kolhivane, and Irkoutsk. The southern division begins at the 50th degree of latitude, and extends to the end of Russia on the south, including the governments of Kiev, Ekatherinossav, Caucasus, and the province of Taurida. To this may be added the habitations of the Cossacks of the Don.

83 The northern division, though deficient in grain, Products of the northern, middle, and southern divisions. fruit, and garden vegetables, has the preference before the other two in the abundance of animals, rare and valuable for their skins; in fishes of particular sorts, very useful for different purposes of life; in cattle, and metals of inferior kinds, &c. The middle division of Russia abounds in different kinds of grain, hemp, flax, cattle,

Russia

cattle, fish, bees, timber proper for every use, different kinds of wild beasts, metals, both of superior as well as of inferior kind, different precious stones, &c. This division is likewise most convenient for the habitation of mankind, on account of the temperature and pleasantness of the air. The fourth division has not that abundance of grain, but has the preference in different delicate kinds of fruit, quantity of fish, cattle, and wild animals, amongst which there are several species different from those which are found in the middle division. It exceeds greatly both the other divisions in plants and roots fit for dying and for medical purposes, as well as for the table; neither is it deprived of precious stones, as well as different metals.

The products of those three divisions constitute the permanent and inexhaustible riches of Russia; for, besides what is necessary for home consumption, there is a great quantity of those products exported yearly into foreign countries to the amount of several millions of rubles. These productions are brought from different places to fairs, established in different parts of Russia, where the merchants buy them up, and forward them to different ports, and other trading towns, for exportation into foreign kingdoms. These fairs are likewise the places where a considerable quantity of goods imported from foreign kingdoms is disposed of. The principal yarmankas, that is, fairs, are the yarmanka Makarievskaya, Korennaya, and Irbitzkaya.

84
External
commerce
of Russia

The external commerce of Russia may be divided into two different branches; 1st, The commerce with the European nations, which is carried on by buying and selling goods either for ready money or upon credit. 2d, The commerce with the Asiatic nations, which is conducted by barter or exchange of goods.

The principal ports belonging to the first part of Russia are, on the Baltic sea, St Petersburg, Riga, Vyborg, Revel, Narva, Fredericksham, and the Baltic port; Archangel on the White sea, and Kola on the Northern Ocean; Taganrog on the sea of Azov; Kherfon, Sevastopole, Balaklava, Soudak, Theodosia, Kerche, and Phanagoria on the Black sea, besides others of smaller note. In these ports commerce is carried on, as well as in several trading towns situated on the frontiers of Poland, Sweden, and Turkey.

85
With Eu-
rope

The products of Russia exported into the different European kingdoms consist chiefly in hemp, flax, different kinds of grain, tallow, hides, sail-cloth, iron, timber, linseed, butter, hemp-oil, train-oil, wax, potashes, tar, tobacco, brittles, linens, peltry, and other goods, the greatest part of which is exported chiefly by way of St Petersburg, Riga, and Archangel; and in return from the European kingdoms they receive woollen cloths, different kinds of goods made of worsted, silk, cotton, and thread; wines and beer, white and moist sugars, silks, cotton unwrought, and yarn; French brandy, liquors, arrack, shrub, different iron tools, and toys; gold and silver in bars, in foreign money, and in other things; brilliants, pearls, galanterie goods, coffee, colours; peltry, viz. beaver and otter skins; herrings, stock-fish, salt, tobacco, different trees, oil, horses, china and earthen ware, &c. The greatest part of these goods is imported through the ports of St Petersburg and Riga, but a considerable quantity is likewise admitted by land through different frontier custom-houses.

The principal goods exported into Asia are partly the products of Russia, and partly imported from other European kingdoms, and consist of peltry and hides. The other goods are woollen cloths, bays, borax, bottles, printed linens, iron, and different kinds of iron-ware, calamancos, kerseys, glue, isinglass, cochineal, indigo, laura, tinsel, gold and silver lace, soap; all kinds of arms, as pistols, guns, fabres; different kinds of linens, printed and glazed, striped linen, ticking, pallock, crash, &c. From the Asiatic kingdoms they import different silk goods, raw silk, cotton, silk-wove stuffs, gold and silver in bars and in coin, cattle, horses, &c.

Russia.
86
And Asia.

The mountains within Russia, as well as those on its frontiers, abound with minerals of various kinds. Gold, &c.

silver, quicksilver, copper, lead, iron-ore, very powerful leadstones, mountain-crystal, amethyst, topazes of different sorts, agates, cornelian, beryl, chalcodony, onyx, porphyry, antimony, pyrites, aquamarines, chrysolites, ophites, and lapis lazuli, are found in them, besides marble, granite, trappe, maria or Muscovy glass, of remarkable size and clearness, basalt, and coal, &c.; and in every part of Siberia, but particularly in the plains of it, are found bones of animals uncommonly large, mammoth's teeth (see MAMMOTH), and other fossils.

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In the Russian empire are many lakes of very large extent. 1. The Ladoga, anciently called *Nevo*, is the largest lake in Europe, extending in length 175 and in breadth 105 versts; or it is 116 English miles long and near 70 broad. It lies between the governments of St Petersburg, Olonetz, and Vyborg; and communicates with the Baltic sea by the river Neva, with the Onega lake by the river Svir, and with the Ilmen lake by the river Volkov. Several considerable rivers fall into it, as the Pasha, Sias, Oyat, and others. The Ladoga canal is made near this lake. 2. The Onega lake is situated in the government of Olonetz. It is above 200 versts long, and the greatest width of it does not exceed 80 versts. 3. The Tchude lake, or Peipus, lies between the governments of St Petersburg, Pskov, Revel, and Riga. It is near 80 versts long and 60 broad. It joins to the lake of Pskov by a large neck of water. The length of this lake is 50 and the width about 40 versts. The river Velikaya flows into it. The river Narova comes out of the lake Peipus, which by the river Embakha communicates with the lake Wirtz-Erve, and from this latter flows the river Fellin, and runs into the bay of Riga. 4. The Ilmen lake, anciently called *Moisk*, lies in the government of Novogorod. Its length is 40 and width 30 versts. The rivers Mita, Lovate, Shelone, and others, fall into it; and only one river, Volkov, runs out of it, by which it is joined with the Ladoga lake. 5. The Bielo-Ozero, that is, the White Lake, lies in the government of Novogorod. It extends 50 versts in length, and about 30 in width. There are many small rivers which run into it; but only one river, Shekfna, comes out of it, and falls into the river Volga. 6. The Altin, or Altay lake, otherwise called the *Teletsk Lake*, is situated in the government of Kolhivane. It extends in length 126 and in width about 84 versts. The river Biya comes out of it, which being joined to the river Katounya, constitute the river Obè. 7. The Baical Lake, otherwise called the *Baical Sea*, and the *Holy Sea*, lies in the government of Irkoutsk. Its extent in length is 600, and in width from

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30 to 50 versts, and in the widest places as far as 70 versts. 8. The Tchani Lake lies in the deserts of Baraba, between the rivers Obè and Irtysh. It joins with a great many smaller lakes, occupies a vast tract of land, and abounds very much in fish. 9. Between the Gulf of Finland and the White Sea there are several lakes which extend from 50 to 70 versts in length; and besides these there are many other salt lakes in different parts of Russia, such as the Ozero, that is, the lake El-tonskoye, Bogdo, Inderiskoye, Ebele, Koryakovskoye, Yamishevskoye, Borovye, and others; and the salt which is got from them serves for the use of the greatest part of the empire. To these may be added the Caspian, which, though called a sea, is more properly a lake, as it has no communication with the ocean either visible or subterraneous. See *CASPIAN-Sea*, and *PNEUMATICS*, n° 277.

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Rivers.

Russia boasts likewise of a considerable number of large and famous rivers. Of the Dvina or Dwina, the Neva, Dnieper or Nieper, the Don, the Volga, the Irtysh, the Onega, the Oby, and the Lena, the reader of this work will find some account under their respective names; but in this vast empire there are many other rivers worthy of notice, tho' not perhaps of such minute description. Among these the *Boug*, or, as it is sometimes written, *Bog*, rises in Poland; then directing its course to the south-east, it divides the government of Ecatherinoflav from the deserts of Otchakov, now belonging to Russia, and falls into the Liman, which communicates with the Black sea.

The Kubane consists of many springs or rivulets running out of the Caucasian mountains, and divides itself into two branches, the one of which falls into the Azov Sea, and the other into the Black sea. This river, from its source to the end of it, constitutes the frontier of Russia.

The Oural, formerly Yaik, takes its rise in the Oural mountains, in the government of Oufa, which it divides from that of Caucasus, and extends its course about 3000 versts. It receives many rivers, the principal of which are the Or, Sakmara, Yleck, and Terkool.—The Kouma rises in the Caucasian mountains, and runs through the plains between Terek and Volga, and at last loses itself in the sands, before it comes to the Caspian sea. The Terek originates in the Caucasian mountains, runs between them, and then coming out, extends its course to the Caspian Sea, and receives several rivers, as the Malka, Soonja, Baksan, and Ackfay.

The Bolshaya Petchora, that is, the great Petchora, rises in the Oural mountains, in the government of Vologda, runs across the whole breadth of the government of Archangel, and falls into the icy sea. It receives in its course several rivers, the principal of which are the Outcha and the Elma. The Enissey is formed by the junction of two rivers, the Oulookema and the Baykema, which rise in the Altay mountains in Mongolia. It runs through the whole extent of Siberia, and falls into the icy Sea. The extent of the Enissey is about 2500 versts. It receives in its course several rivers, the principal of which are the Abakan, Elogooy, Podkamennaya Tungouska, Niznyaya Tungouska, and Tourookhan. The Yana, the Indighirka, and the Kolhima, are likewise no inconsiderable rivers in the government of Irkoutsk. The first rises in the mountains

which overshadow the banks of the river Lena on the right hand, and extends its course 800 versts. The two last take their sources in the mountains which extend on the coasts of the Eastern sea. The length of the Indighirka is 1200 and that of Kolhima 1500 versts.—The last, near its mouth, is divided into two branches, and receives the rivers Omolon and Onooy. The Anadir is the easternmost of all the rivers in Siberia. It rises out of the lake Ioanko, in the district of Okhotsk, and runs through the eastern part of it, and then falls into the Eastern ocean. The Amour is formed by the junction of two considerable rivers, the Shilka and Argoonya, which are joined just by the frontiers of China. It runs through the Chinese dominions, and at last falls into the Eastern ocean. The Kamtschatka runs through the peninsula of the same name, extending its course from the Verkhney to Nizney Ostrog, that is, from the upper to the lower fort, and falls into the Eastern ocean. The Penjina rises in the Yablonnoy ridge of mountains, and falls into the Penjinskaya Gooba, that is, the gulf or the sea of Penjina.

In such a vast extent of country, stretching from the temperate so far into the frigid zone, the climate must vary considerably in different places. In the southern parts of the Russian empire, the longest day does not exceed fifteen hours and a half; whereas in the most northern, the sun in summer is seen two months above the horizon. The country in general, though lying under different climates, is excessively cold in the winter. Towards the north, the country is covered near three quarters of the year with snow and ice; and by the severity of the cold many unfortunate persons are maimed, or perish. This sort of weather commonly sets in about the latter end of August, and continues till the month of May; in which interval the rivers are frozen to the depth of four or five feet. Water thrown up into the air will fall down in icicles; birds are frozen in their flight, and travellers in their sledges. In some provinces the heats of summer are as scorching as the winter colds are rigorous.

The soil of Muscovy varies still more than the climate, according to the influence of the sun and the situation of the country. In the warmer provinces, the process of vegetation is so rapid, that corn is commonly reaped in two months after it begins to appear above the surface of the ground. Hence the great variety of mushrooms produced spontaneously in Russia, which may be considered as a comfortable relief to the poor, while they appear as delicacies at the tables of the rich. Above 1000 waggon-loads of them used to be sold annually in Moscow. Perhaps it is on account of the scarcity of provisions that such a number of fasts are instituted in the Muscovite religion.

Besides the productions already mentioned as peculiar to each of the three great natural divisions of the empire, Muscovy yields rhubarb, flax, hemp, pasture for cattle, wax, and honey. Among other vegetables, we find in Russia a particular kind of rice called *psynba*, plenty of excellent melons, and in the neighbourhood of Astracan the famous zoophyton, or animal plant, which the Muscovites call *bonnaret*, or lambkin, from its resemblance to a lamb. See the article *Scythian LAMB*.

Agriculture in general is but little understood, and less prosecuted in this country. The most considerable articles in the economy of a Russian farm are wax and

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ductions.93
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honey, by which the peasant is often enriched. He cuts down a great number of trees in the forest, and sawing the trunks into a number of parts, bores each of these, and stops up the hollow at both ends, leaving only a little hole for the admittance of the bees; thus the honey is secured from all the attempts of the bear, who is extremely fond of it, and tries many different experiments for making himself master of the luscious treasure.—Of this honey the Russians make a great quantity of strong metheglin for their ordinary drink. They likewise extract from rye a spirit, which they prefer to brandy.

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Animals.

The wild beasts in the northern part of Russia are the same with those we have mentioned in the articles of Norway and Lapland: such as rein-deer, bears, foxes, ermins, martens, fables, hares, and squirrels. In the more southern provinces the Muscovites breed black cattle, small but hardy horses, sheep, goats, and camels. The breed of cattle and horses has been enlarged by the care and under the protection of Peter and succeeding sovereigns. The whole empire abounds with wild-fowl and game of all sorts, and a variety of birds of prey; besides the different kinds of poultry, which are raised in this as well as in other countries. The external parts and provinces of Muscovy are well supplied with sea-fish from the Northern ocean, the Baltic, or gulph of Finland, the White sea, the Black sea, and the Caspian; but the whole empire is plentifully provided with fresh-water fish from the numerous lakes and rivers, yielding immense quantities of salmon, trout, pike, sturgeon, and belluga: the last being a large fish, of whose roe the best caviare is made. Innumerable insects, like those of Lapland, are hatched by the summer's heat in the sand, morasses, and forests, with which this empire abounds; and are so troublesome as to render great part of the country altogether uninhabitable.

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Inhabitant.

The Russian empire is inhabited by no less than 16 different nations, of which our limits will hardly permit us to give the names. The first are the Slavonic nations, comprehending the Russians, who are the predominant inhabitants of the whole empire, and the Poles, who besides occupying the countries lately wrested from the republic, live in the governments of Polatsk and Moghilev, as well as in the district of Salenghinsk and along the river Irtysh. 2. The Germanic nations, comprehending the Germans properly so called, who inhabit Esthonia and Livonia; the Swedes inhabiting the Russian Finland, as well as some of the islands on the Baltic sea; and the Danes, who inhabit the islands of the Baltic sea, the Worms, and Grofs or Great Roge. 3. The Lettonian or Livonian nations, under which are classed the original or real Lettonians or Lettish, inhabiting Livonia; and the Lithuanians, who live in the government of Polatsk and Moghilev. 4. The Finns, or Tchudi, nations who inhabit the governments of Viberg and St Petersburg, with many other districts of the empire, being branched out into no fewer than 12 different tribes. 5. The Tartarian nations, who are all either Mahometans or idolaters. The Mahometan Tartars, commonly called by the Russians *Tartare*, dwell in Kazane, and the places adjacent; at Kefimov; at Ouse, in the government of Parma; at Tomsk and its neighbourhood, and are in general a sober, industrious, cleanly, and generous people. The other Tartars

inhabit different parts of Siberia, and are intermixed with still different races, called after the towns, rivers, and other places to which their habitations are nearest.—They are, as we have said, idolaters, and governed by shamens. (See SHAMEN.) Besides these, there are in the Russian dominions the Nagay Tartars; the Crime Tartars, inhabiting the Crimea, who, together with the land belonging to them, came under the subjection of Russia in 1783; the Mescheraki; the Bashkirs; the Kirghistzi or Kirghis-kaisaks; the Yakouti; and the white Kalmuks. 6. The Caucasian nations, which are six in number, and are each subdivided into many different tribes, of which it is probable that few of our readers have ever heard the names, except of the Circassians, who live in different settlements bordering on the river Kubane. 7. The Samoyeds or Samoeds, comprehending the Ostiacks*. These inhabit the northernmost part of Russia, along the coast of the Icy sea.—8. The Mungalian nations, comprehending the original Mungals, who are chiefly dispersed in the deserts of Gobei; the Bourati, who live on the banks of the Baikal, and other places in the government of Irkoutsk; and the Kalmuks, consisting of four different tribes.—All these hordes speak the Mungalian language, observe the religion of Lama and the Kalmuks live in large tents. 9. The Tongoosi, a very populous tribe, dispersed from the river Enissey as far as the sea of Okhotsk, and from the Penjinskaya Gooba beyond the Chinese frontier. They are all idolaters, and live by hunting and fishing. 10. The Kamtschadels. 11. The Koriaki. 12. The Kouriltzi. Of these three nations we have given some account under the article КАМТШАТКА. 13. The Aleouti, who dwell in the islands between Siberia and America, and very much resemble the Esquimaux and the inhabitants of Greenland.—They live in large huts, and seem to be idolaters.—14. The Arintzi, a very numerous people scattered in the government of Kolhivane. 15. The Yukaghiri, who are dispersed on the coasts of the Glacial sea, about the rivers Yana, Kolhima, and Lena, and as far as the source of the Anadir. 16. The Tchouktchi, who occupy the north-eastern part of Siberia, between the rivers Kolhima and Anadir. Besides these sixteen different nations, there are scattered through the Russian empire vast numbers of Buckharian Tartars, Persians, Georgians, Indians, Greeks, Servians, Albanians, Bulgarians, Moldavians, Valekians, Armenians, and Jews.

The empire of Russia is so widely extended, that notwithstanding the number of nations which it comprehends, it must be considered as by no means populous. At the last revision it was found to contain 26 millions of souls; but it is to be observed, that the nobility, clergy, land as well as sea forces, different officers, servants belonging to the court, persons employed under government in civil and other offices; the students of different universities, academies, seminaries, and other schools; hospitals of different denominations; likewise all the irregular troops, the roving hordes of different tribes, foreigners and colonists, or settlers of different nations—are not included in the above-mentioned number: but with the addition of all these, the population of Russia, of both sexes, may be supposed to come near to 28 millions.

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*See Oji-acks.

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Population.

To such a vast variety of people, nations, and languages, it is needless to observe, that no general character can with truth be applied. The native Russians are stigmatised by their neighbours as ignorant and brutal, totally resigned to sloth, and addicted to drunkenness, even in the most beastly excess; nay, they are accused of being arbitrary, perfidious, inhuman, and destitute of every social virtue. There is not a phrase in their language analogous to ours, "the manners or the sentiments of a gentleman;" nor does *gentleman* with them express any thing moral. Indeed they have no such distinction. Cunning is *professed* and *gloried in* by all; and the nobleman whom you detect telling a lie is vexed, but not in the least ashamed. In the whole regulation of the marine by Peter the Great, there is not one word addressed to the honour, or even to the probity, of his officers. Hopes of reward, and the constant fear of detection and punishment, are the only motives touched on. In every ship of war, and in every regiment, there is a fiscal or authorized spy, a man of respectable rank, whose letters must not be opened but at the risk of the great knout (see *Knout*); and he is required by express statute to give monthly reports of the behaviour of the officers and privates.

Such regulations we cannot think well adapted to improve the morals of the people; yet we believe they have been improved by the care, assiduity, and example of some of their late sovereigns. Certain it is, the vice of drunkenness was so universally prevalent among them, that Peter I. was obliged to restrain it by very severe edicts, which, however, have not produced much effect. They numbered in the city of Moscow no fewer than 4000 brandy-shops, in which the inhabitants used to sit away their time in drinking strong liquors and smoking tobacco. This last practice became so dangerous, among persons in the most beastly state of intoxication, that a very severe law was found necessary to prevent the pernicious consequences, otherwise the whole city might have been consumed by conflagrations. The nobility were heretofore very powerful, each commanding a great number of vassals, whom they ruled with the most despotic and barbarous authority; but their possessions have been gradually circumscribed, and their power transferred in a great measure to the czar, on whom they are now wholly dependent.

At present there is no other degree of the nobility but that of the boyars: these are admitted to the council, and from among them the waivodes, governors, and other great officers, are nominated, and their ranks with respect to each other are regulated by the importance of their respective offices.

Alexis, who introduced this order of precedence, abhorred the personal abasement of the inferior classes to their superiors, which he would not accept of when exhibited to himself; and it may appear surprising that Peter, who despised mere ceremonials, should have encouraged every extravagance of this kind. In a few years of his reign, the beautiful simplicity of designation and address which his father had encouraged was forgotten, and the cumbersome and almost ineffable titles which disgrace the little courts of Germany were crowded into the language of Russia. He enjoined the lowest order of gentlemen to be addressed by the phrase, *your respectable birth*; the next rank, by *your high good*

birth; the third, *your excellence*; the fourth, *your high excellence*; then came *your brilliancy* and *high brilliancy*. *Highness* and *majesty* were reserved for the great duke and the czar.

These titles and modes of address were ordered with all the regularity of the manual exercise; and the man who should omit any of them when speaking to his superior might be lawfully beaten by the offended boyar. Before this period, it was polite and courtly to speak to every man, even the heir apparent, by adding his father's name to his own; and to the great duke, Paul Petrovitz was perfectly respectful, or a single word signifying *dear father*, when he was not named. Tho' pompous titles were unknown among them before the era of Peter, the subordination of ranks was more complete than in any other European nation; but with this simplicity peculiar to them and the Poles, that they had but three ranks, the sovereign, the noblesse or gentry, and the serfs. It was not till very lately that the mercantile rank formed any distinction; and that distinction is no more than the freedom of the person, which was formerly a transferable commodity belonging to the boyar. Notwithstanding this simplicity, which put all gentlemen on a level, the subscription of a person holding an inferior office was not *servant*, but *slave*; and the legal word for a petition in form was *ichelobiti*, which signifies, "a beating with the forehead," i.e. striking the ground with the forehead; which was actually done. The father of Alexis abolished the practice; but at this day, when a Russian petitions you, he touches his forehead with his finger; and if he be very earnest, he then puts his finger to the ground.

The Russian nobles formerly wore long beards, and long robes with strait sleeves dangling down to their ancles: their collars and shirts were generally wrought with silk of different colours: in lieu of hats, they covered their heads with furred caps; and, instead of shoes, wore red or yellow leathern buskins. The dress of the women nearly resembled that of the other sex; with this difference, that their garments were more loose, their caps fantastical, and their shift-sleeves three or four ells in length, gathered up in folds from the shoulder to the fore-arm. By this time, however, the French fashions prevail among the better sort throughout all Muscovy.

The common people are generally tall, healthy, and robust, patient of cold and hunger, inured to hardships, and remarkably capable of bearing the most sudden transition from the extremes of hot or cold weather. Nothing is more customary than to see a Russian, who is over-heated and sweating at every pore, strip himself naked, and plunge into a river; nay, when their pores are all opened in the hot bath, to which they have daily recourse, they either practise this immersion, or subject themselves to a discharge of some pailfuls of cold water. This is the custom of both men and women, who enter the baths promiscuously, and appear naked to each other, without scruple or hesitation.

A Russian will subsist for many days upon a little oatmeal and water, and even raw roots: an onion is a regale; but the food they generally use in their journeys is a kind of rye-bread, cut into small square pieces, and dried again in the oven: these, when they are hungry, they soak in water, and eat as a very com-

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fortable repast. Both sexes are remarkably healthy and robust, and accustom themselves to sleep every day after dinner.

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Of their
marriages.

The Russian women are remarkably fair, comely, strong, and well-shaped, obedient to their lordly husbands, and patient under discipline: they are even said to be fond of correction, which they consider as an infallible mark of their husband's conjugal affection; and they pout and pine if it be withheld, as if they thought themselves treated with contempt and disregard. Of this neglect, however, they have very little cause to complain; the Russian husband being very well disposed, by nature and inebriation, to exert his arbitrary power. Some writers observe, that, on the wedding-day, the bride presents the bridegroom with a whip of her own making, in token of submission; and this he fails not to employ as the instrument of his authority. Very little ceremony is here used in match-making, which is the work of the parents. Perhaps the bridegroom never sees the woman till he is joined to her for life. The marriage being proposed and agreed to, the lady is examined, stark-naked, by a certain number of her female relations; and if they find any bodily defect, they endeavour to cure it by their own skill and experience. The bride, on her wedding-day, is crowned with a garland of wormwood, implying the bitterness that often attends the married state. When the priest has tied the nuptial knot at the altar, his clerk or sexton throws upon her head a handful of hops, wishing that she may prove as fruitful as the plant thus scattered. She is muffled up, and led home by a certain number of old women, the parish-priest carrying the cross before; while one of his subalterns, in a rough goat-skin, prays all the way that she may bear as many children as there are hairs on his garment. The new-married couple, being seated at table, are presented with bread and salt; and a chorus of boys and girls sing the epithalamium, which is always grossly obscene. This ceremony being performed, the bride and bridegroom are conducted to their own chamber by an old woman, who exhorts the wife to obey her husband, and retires. Then the bridegroom desires the lady to pull off one of his buckles, giving her to understand, that in one of them is contained a whip, and in the other a jewel or a purse of money. She takes her choice; and if she finds the purse, interprets it into a good omen; whereas should she light on the whip, she construes it into an unhappy presage, and instantly receives a lash as a specimen of what she has to expect. After they have remained two hours together, they are interrupted by a deputation of old women, who come to search for the signs of her virginity: if these are apparent, the young lady ties up her hair, which before consummation hung loose over her shoulders, and visits her mother, of whom she demands the marriage portion. It is generally agreed, that the Muscovite husbands are barbarous even to a proverb; they not only administer frequent and severe correction to their wives, but sometimes even torture them to death, without being subject to any punishment for the murder.

The canon law of Muscovy forbids the conjugal commerce on Mondays, Wednesdays, and Fridays; and whoever transgresses this law, must bathe himself before he enters the church-porch. He that marries a second

wife, the first being alive, is not admitted farther than the church-door; and if any man espouses a third, he is excommunicated: so that though bigamy is tolerated, they nevertheless count it infamous. If a woman is barren, the husband generally persuades her to retire into a convent: if fair means will not succeed, he is at liberty to whip her into condescension. When the czar, or emperor, has an inclination for a wife, the most beautiful maidens of the empire are presented to him for his choice.

The education of the czarowitz, or prince royal, is intrusted to the care of a few persons, by whom he is strictly kept from the eyes of the vulgar, until he hath attained the 15th year of his age: then he is publicly exposed in the market-place, that the people, by viewing him attentively, may remember his person, in order to ascertain his identity; for they have more than once been deceived by impostors.

Such is the slavery in which the Muscovites of both sexes are kept by their parents, their patrons, and the emperor, that they are not allowed to dispute any match that may be provided for them by these directors, however disagreeable or odious it may be. Officers of the greatest rank in the army, both natives and foreigners, have been saddled with wives by the sovereign in this arbitrary manner. A great general some time ago deceased, who was a native of Britain, having been pressed by the late czarina to wed one of her ladies, saved himself from a very disagreeable marriage, by pretending his constitution was so unsound, that the lady would be irreparably injured by his compliance.

In Russia, the authority of parents over their children is almost as great as it was among the ancient Romans, and is often exercised with equal severity. Should a father, in punishing his son for a fault, be the immediate cause of his death, he could not be called to account for his conduct; he would have done nothing but what the law authorized him to do. Nor does this legal tyranny cease with the minority of children; it continues while they remain in their father's family, and is often exerted in the most indecent manner. It is not uncommon, even in St Petersburg, to see a lady of the highest rank, and in all the pomp and pride of youthful beauty, standing in the court-yard with her back bare, exposed to the whip of her father's servants. And so little disgrace is attached to this punishment, that the same lady will sit down at table with her father and his guests immediately after she has suffered her flogging, provided its severity has not confined her to bed.

The Muscovites are fond of the bagpipe, and have a kind of violin, with a large belly like that of a lute: but their music is very barbarous and defective. Nevertheless, there are public schools, in which the children are regularly taught to sing. The very beggars ask alms in a whining cadence, and ridiculous sort of recitative. A Russian ambassador at the Hague, having been regaled with the best concert of vocal and instrumental music that could be procured, was asked how he liked the entertainment? he replied, "Perfectly well: the beggars in my country sing just in the same manner." The warlike music of the Russians consists in kettle-drums and trumpets: they likewise use hunting horns; but they are not at all expert in the performance.

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Authority
of parents
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children.

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Music and
dancing.

^{Russia.} formance. It has been said, that the Russians think it beneath them to dance, and that they call in their Polish or Tartarian slaves to divert them with this exercise in their hours of dissipation. Such may have been the case formerly, or may be so now, in the distant and most barbarous provinces of the empire; but at St Petersburg dancing is at present much relished, and a minuet is nowhere so gracefully performed in Europe as by the fashionable people in that metropolis.

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^{language.} We have elsewhere observed, that the Russian language is a dialect of the Slavonic, and the purest perhaps that is now anywhere to be found (see PHILOLOGY, Sect. ix. § 3.); but they have nothing ancient written in it, except a translation of Chrysostom's Offices for Easter, which are at this day good Russian, and intelligible to every boor, though certainly not less than 800 years old. There is no Russian poetry which there is reason to believe 200 years old; and the oldest translation of the Scriptures into that language is but a late thing, and come to them from Königsberg. Science has made but a very small progress among them; and the reputation of the imperial academy at St Petersburg has been hitherto supported by the exertions of foreigners. For antiquarian research they have as little relish as for scientific investigation. Every thing, to please, must be new; and the only elucidations which we have of their antiquities are the performances of Germans and other foreigners, such as professors Bayer, Muller, and Gmelin. One native has indeed shown some desire to recover and preserve what he can of their most ancient poetry; but in his researches, he seems more indebted to an exquisitely nice ear than to any erudition. Erudition indeed they hold in the most sovereign contempt. No gentleman is ever taught Latin or Greek; and were a Russian stranger in company to give any hint of his possessing such knowledge, every man with a sword would draw away his chair, and set him down for a charity-boy. Peter the Great and the present empress have done what sovereigns could do to dispel these clouds of ignorance, by instituting schools and colleges, and giving the masters and professors military rank; but all in vain. One of the most accomplished scholars of the age, after having made himself extremely agreeable to a company of ladies, by means of his taste in music, and a sword at his side, was instantly deserted by them upon some person's whispering through the room that he was a man of learning; and before his fair companions would be reconciled to him, he was obliged to pretend that he was a lieutenant-colonel, totally illiterate.

The two first sentences of Prince Shtcherbatoff's dedication of his History of Russia, which was printed in three volumes 4to, in 1770, afford an admirable specimen of Russian literature. "The history of the human understanding (says this dedicator) assures us, that everywhere the sciences have followed the progress of the prosperity and the strength of kingdoms. When the Grecian arms had overthrown the greatest monarchy then in the world, when they had the famous generals Miltiades, Themistocles, Aristides, Conon, and Alcibiades, at the same time flourished among them Anaximander, Anaxagoras, Archytas, Socrates, and Plato. And when Augustus had conquered the world, and had shut the gates of the temple of Janus, and the proud Romans, under his happy government, cheerfully obeyed his com-

^{Russia.} mands, then did Titus Livius, Thucydides, Virgil, and Horace, adorn his court, and celebrate his glory."—A passage so replete as this with blunders and anachronisms it would surely be difficult to find in any other author.

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^{Religion.} The Russians were converted to the Christian religion towards the latter end of the tenth century, as has been already related. Since that period they have confessed the articles of the Greek church, mingled with certain superstitious ceremonies of their own. They do not believe in the pope's infallibility or supremacy, or even hold communion with the see of Rome: they use auricular confession, communicate in both kinds, adopt the Athanasian creed, and adhere to the established liturgy of St Basil. They worship the Virgin Mary, and other saints; and pay their adorations to crosses and relics. They observe four great fasts in the year, during which they neither taste fish, flesh, nor any animal production: they will not drink after a man who has eaten flesh, nor use a knife that has cut meat in less than 24 hours after it has been used; nor will they, even though their health is at stake, touch any thing in which hartshorn or any animal substance has been infused. While this kind of Lent continues, they subsist upon cabbage, cucumbers, and rye-bread, drinking nothing stronger than a sort of small beer called *quassia* †. They likewise fast every Wednesday and Friday. Their common penance is to abstain from every species of food and drink, but bread, salt, cucumbers, and water. They are ordered to bend their bodies, and continue in that painful posture, and between whiles to strike their head against an image.

^{† See Peasants.} The Muscovites at all times reject as impure; horse-flesh, elk, veal, hare, rabbit, ass's milk, mare's milk, and Venice-treacle, because the flesh of vipers is an ingredient; also every thing that contains even the smallest quantity of musk, civet, and castor: yet they have no aversion to swine's flesh; on the contrary, the country produces excellent bacon. They celebrate 15 grand festivals in the year. On Palm-sunday there is a magnificent procession, at which the czar assists in person and on foot. He is apparelled in cloth of gold; his train is borne up by the prime of the nobility, and he is attended by his whole court. He is immediately preceded by the officers of his household, one of whom carries his handkerchief on his arm, lying upon another of the richest embroidery. He halts at a sort of platform of free-stone, where, turning to the east, and bending his body almost double, he pronounces a short prayer: then he proceeds to the church of Jerusalem, where he renews his devotion. This exercise being performed, he returns to his palace, the bridle of the patriarch's horse resting upon his arm. The horse's head being covered with white linen, is held by some nobleman; while the patriarch, sitting sideways, and holding a cross in his hand, distributes benedictions as he moves along; on his head he wears a cap edged with ermin, adorned with loops and buttons of gold, and precious stones: before him are displayed banners of consecrated stuff, in a variety of colours. Above 500 priests walk in the procession; those who are near the patriarch bearing pictures of the Virgin Mary, richly ornamented with gold, jewels, and pearls, together with crosses, relics, and religious books, including a copy of the Gospels, which they reckon to be of inestimable

Russia. estimable value. In the midst of this procession is borne a triumphal arch; and on the top an apple-tree covered with fruit, which several little boys inclosed in the machine endeavour to gather. The lawyers and laity carry branches of willow; the guards and the spectators prostrate themselves on the ground while the procession halts; and after the ceremony, the patriarch presents a purse of 100 rubles to the czar, who perhaps invites him to dine at his table. During the season of Easter, the whole empire is filled with mirth and rejoicing: which, however, never fails to degenerate into heat and debauchery; even the ladies may indulge themselves with strong liquors to intoxication without scandal. When a lady sends to inquire concerning the health of her guests whom she entertained over-night, the usual reply is, "I thank your mistress for her good cheer: by my troth, I was so merry that I don't remember how I got home."

During these carnivals, a great number of people, in reeling home drunk, fall down and perish among the snow. It is even dangerous to relieve a person thus overtaken; for, should he die, the person who endeavoured to assist him is called before the judge, and generally pays dear for his charity.

The Muscovite priests use exorcisms at the administration of baptism. They plunge the child three times over head and ears in water, and give it the sacrament of the Lord's Supper in one species, until it hath attained the age of seven; after which the child is indulged with it in both kinds. They likewise administer the sacrament to dying persons, together with extreme unction; and if this be neglected, the body is denied Christian burial. Soon as the person expires, the body is deposited in a coffin, with a luncheon of bread, a pair of shoes, some few pieces of money, and a certificate signed by the parish-priest, and directed to St Nicholas, who is one of their great patrons. They likewise hold St Andrew in great veneration, and ridiculously pretend they were converted by him to Christianity. But next to St Nicholas, they adore St Anthony of Padua, who is supposed to have sailed upon a mill-stone through the Mediterranean and Atlantic, and over the lakes Ladoga and Onega, as far as Novogorod. Every house is furnished with an image of St Nicholas, carved in the most rude and fantastic manner; and when it becomes old and worm-eaten, the owner either throws it into the river with a few pieces of coin, saying, "Adieu, brother;" or returns it to the maker, who accommodates him with a new image for a proper consideration. The good women are very careful in adorning their private St Nicholases with rich clothes and jewels; but on any emergency, these are resumed, and the saint left as naked as he came from the hand of the carpenter.

There are monasteries in Russia; but neither the monks nor the nuns are subject to severe restrictions. The friars are either horse-jockeys, or trade in hops, wheat, and other commodities; the sisters are at liberty to go abroad when they please, and indulge themselves in all manner of freedoms.

Heretofore liberty of conscience was denied, and every convicted heretic was committed to the flames; but since the reign of Peter, all religions and sects are tolerated throughout the empire. Roman Catholics, Lutherans, Calvinists, Armenians, Jews, and Mahometans, enjoy the free exercise of their respective forms

of worship; though it was not without great difficulty, and by dint of extraordinary solicitation from different powers, that the Romish religion was allowed. Peter knowing the dangerous tenets of a religion that might set the spiritual power of the pope at variance with the temporal power of the emperor, and being well acquainted with the meddling genius of its professors, held out for some time against the intercession of Germany, France, and Poland; and though at length he yielded to their joint interposition, he would by no means suffer any Jesuit to enter his dominions.

The government of Russia is mere despotism. The whole empire is ruled by the arbitrary will and pleasure of the sovereign, who is styled the *czar* or *tzar*, a title which is probably a corruption of Cæsar. Heretofore he was styled *grand duke of Muscovy*: but since the reign of Peter, he is dignified with the appellation of *emperor of Russia*; and the present sovereign is styled *empress of all the Russias*. The emperor is absolute lord, not only of all the estates in the empire, but also of the lives of his subjects; the greatest noblemen call themselves his *slaves*, and execute his commands with the most implicit obedience. The common people revere him as something supernatural; they never mention his name, or any thing immediately belonging to him, without marks of the most profound respect and awful veneration. A man asking a carpenter at work upon one of the czar's warehouses, what the place was intended for? answered, "None but God and the czar knows."

The nobility of Russia were formerly rich and powerful, and ruled despotically over their inferiors: but we have seen how the father of Peter the Great contrived to strip them of their privileges, and they are now venal dependants on the court. They still retain the titles of their ancestors, though many of them are in the most abject poverty and contempt.

All the peasants in the empire are considered as immediate slaves belonging to the czar, to the boyars, or to the monasteries. The value of estates is computed, not by the extent or quality of the land, but from the number of those peasants, who may be sold, alienated, or given away, at the pleasure of their masters. The number of these husbandmen, whether living in villages or in the open country, being known, the czar, by requiring a certain proportion of each lord or proprietor, can raise 300,000 men in less than 40 days.

The administration is managed by a grand council, called *dumnoy boyaren*, or "council of the boyars," who are the grandees of the empire, and act as privy counsellors. To this are subservient six inferior chambers and courts of judicature, provided each with a president. The first regulates every thing relating to ambassadors and foreign negotiations; the second takes cognizance of military affairs; the third manages the public revenues of the empire; the business of the fourth is to encourage, protect, and improve trade and commerce. The two last hear and determine in all causes, whether civil or criminal.

Peter divided the empire into the eight governments of Moscow, Archangel, Asoph, Casan, Astracan, Chioff and the Ukraine, Siberia, Livonia, comprehending Ingria, Plescow, and Novogorod, Smolensko, and Veronitz. The governors or waivodes were vested with power to dispose of all employments civil and military, and receive the revenues. They were directed to

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defray all expences in their respective governments, and send a certain yearly sum to the great treasury. In a word, they enjoyed absolute power in every thing but what related to the regular troops, which, though quartered in their jurisdiction, were neither paid nor directed by them, but received their orders immediately from the czar or his generals.

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In 1775 the present empress made a complete new-modelling of the internal government in a form of great simplicity and uniformity. By that reglement she divided the whole empire into 43 governments; as we have already mentioned, placing over each, or where they are of less extent, over two contiguous governments, a governor-general with very considerable powers. She subdivided each government into provinces and districts; and for the better administration of justice erected in them various courts of law, civil, criminal, and commercial, analogous to those which are found in other countries. She established likewise in every government, if not in every province, a tribunal of conscience, and in every district a chamber for the protection of orphans. Amidst so many wise institutions a chamber for the administration of her imperial majesty's revenues was not forgotten to be established in each government, nor a tribunal of police in each district. The duty of the governor-general, who is not properly a judge, but the guardian of the laws, is to take care that the various tribunals in his government discharge their respective duties, to protect the oppressed, to enforce the administration of the laws; and when any tribunal shall appear to have pronounced an irregular sentence, to stop the execution till he make a report to the senate and receive her majesty's orders: It is his business likewise to see that the taxes be regularly paid; and, on the frontiers of the empire, that the proper number of troops be kept up, and that they be attentive to their duty.

This reglement contains other institutions, as well as many directions for the conducting of law-suits in the different courts, and the administration of justice, which do her majesty the highest honour; but the general want of morals, and what we call a sense of honour, in every order of men through this vast empire, must make the wisest regulations of little avail. Russia is perhaps the only nation in Europe where the law is not an incorporated profession. There are no seminaries where a practitioner must be educated. Any man who will pay the fees of office may become an attorney, and any man who can find a client may plead at the bar. The judges are not more learned than the pleaders. They are not fitted for their offices by any kind of education; nor are they necessarily chosen from those who have frequented courts and been in the practice of pleading. A general, from a successful or an equivocal campaign, may be instantly set at the head of a court of justice; and in the absence of the imperial court from St Petersburg, the commanding officer in that city, whoever he may be, presides *ex officio* in the high court of justice. The other courts generally change their presidents every year. Many inconveniences must arise from this singular constitution; but fewer, perhaps, than we are apt to imagine. The appointment to so many interior governments makes the Russian nobility acquainted with the gross of the ordinary business of law-courts; and a statute or imperial edict is law in every case. The great obstacles to the admini-

stration of justice are the contrariety of the laws and the venality of the judges. From inferior to superior courts there are two appeals; and in a great proportion of the causes the reversal of the sentence of the inferior court subjects its judges to a heavy fine, unless they can produce an edict in full point in support of their decision. This indeed they seldom find any difficulty to do; for there is hardly a case so simple but that edicts may be found clear and precise for both parties; and therefore the judges, sensible of their safety, are very seldom incorruptible. To the principle of honour, which often guides the conduct of judges in other nations, they are such absolute strangers, that an officer has been seen sitting in state and distributing justice from a bench to which he was chained by an iron collar round his neck, for having the day before been detected in conniving at smuggling. This man seemed not to be ashamed of the crime, nor did any one avoid his company in the evening.

Few crimes are capital in Russia: murder may be atoned by paying a sum of money; nay, the civil magistrate takes no cognizance of murder, without having previously received information at the suit of some individuals. Criminals were punished with torture and the most cruel deaths till the reign of the illustrious Catharine I. when a more merciful system took place, and which the present empress has since confirmed by law. See the articles *CATHARINE I. of Russia*, and *ELIZABETH Petrowna*.

We have already mentioned the traffic of the Russians with the different nations both of Asia and Europe, and specified iron as one of the articles which they export. We may here add, that in 1792 there were in the government of Parma alone, which lies in the northern division of the empire, 88 copper and iron works belonging to the government and private persons, and three gold works. The metals extracted in these works are chiefly conveyed to St Petersburg by water-carriage on the river Tchoufowaya, which falls into the Kama. With respect to the revenue of Russia, it continually fluctuates, according to the increase of commerce or the pleasure of the czar, who has all the wealth of the empire at his disposal. He monopolizes all the best furs, mines, minerals, and the trade by land to the East Indies; he farms out all the tobacco, wine, brandy, beer, mead, and other liquors; the inns, taverns, public houses, bath, and sweating-houses. The customs upon merchandize, the imposts upon corn, and toll exacted from cities, towns, and villages, are very considerable. He possesses demesnes to a very great value; inherits the effects of all those that die intestate, or under accusation of capital crimes; derives a duty from all law-suits; and to sum up the whole, can command the fortunes of all his subjects. All these articles produce a large revenue, which was three years ago estimated at upwards of 40,000,000 rubles, or L. 6,333,333: 6: 8 Sterling; but then the intrinsic value of money is at least three times greater in Russia than in Britain. The expences in time of peace never exceed 38,000,000 rubles: the remainder is not treasured up, but is employed by her imperial majesty in constructing public edifices, making harbours, canals, roads, and other useful works, for the glory of the empire and the benefit of her subjects.

The standing army of Russia is computed at 250,000 men; besides these, the Russians can assemble a body

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of 40,000 irregulars, Calmucks, Cossacks, and other Tartars, who live under their dominion. But the number may be doubled on any emergency. The czarina has likewise a considerable fleet in the Baltic, and a great number of formidable galleys, frigates, fire-ships, and bomb-ketches.

RUST, the flower or calx of any metal, procured by corroding and dissolving its superficial parts by some menstruum. Water is the great instrument or agent in producing rust: and hence oils, and other fatty bodies, secure metals from rust; water being no menstruum for oil, and therefore not able to make its way through it. All metals except gold are liable to rust; and even this also if exposed to the fumes of sea-salt. For remedies against rust, see IRON, *par. ult.*

RUSTIC, in architecture, implies a manner of building in imitation of nature, rather than according to the rules of art. See ARCHITECTURE.

RUSTIC Gods, *dii rustici*, in antiquity, were the gods of the country, or those who presided over agriculture, &c. Varro invokes the 12 *dii consentes*, as the principal among the rustic gods; viz. Jupiter, Tellus, the Sun, Moon, Ceres, Bacchus, Rubigus, Flora, Minerva, Venus, Lympha, and Good Luck. Besides these 12 arch-rustic gods, there were an infinity of lesser ones; as Pales, Vertumnus, Tutelina, Fulgor, Sterculius, Mellona, Jugatinus, Collinus, Vallonia, Terminus, Sylvanus, and Priapus. Struvius adds the Satyrs, Fauns, Sileni, Nymphs, and even Tritons; and gives the empire over all the rustic gods to the god Pan.

RUSTIC Order, that decorated with rustic quoins, rustic work, &c.

RUSTIC Work, is where the stones in the face, &c. of a building, instead of being smooth, are hatched, or picked with the point of a hammer.

RUSTRE, in heraldry, a bearing of a diamond shape, pierced through in the middle with a round hole. See HERALDRY.

RUT, in hunting, the venery or copulation of deer.

RUTA, RUE: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking under the 26th order, *Mutifolique*. The calyx is quinquepartite; the petals concave; the receptacle surrounded with 10 melliferous pores; the capsule is lobed. In some flowers, a fifth part of the number is excluded. There are several species; of which the most remarkable is the *hortensis*, or common broad-leaved garden rue, which has been long cultivated for medicinal use. This rises with a shrubby stalk to the height of five or six feet, sending out branches on every side, garnished with decompounded leaves, whose small lobes are wedge-shaped, of a grey colour, and have a strong odour. The flowers are produced at the end of the branches in bunches almost in the form of umbels: they are composed of four yellow concave petals which are cut on their edges, and eight yellow stamina which are longer than the petals, terminated by roundish summits. The germen becomes a roundish capsule, with four lobes punched full of holes containing rough black seeds.

Rue has a strong ungrateful smell, and a bitterish penetrating taste: the leaves, when full of vigour, are extremely acid, inasmuch as to inflame and blister the skin, if much handled. With regard to their medicinal virtues, they are powerfully stimulating, attenuating, and detergent; and hence, in cold phlegmatic habits,

they quicken the circulation, dissolve tenacious juices, open obstructions of the excretory glands, and promote the fluid secretions. The writers on the materia medica in general have entertained a very high opinion of the virtues of this plant. Boerhaave is full of its praises; particularly of the essential oil, and the distilled water cohobated or re-distilled several times from fresh parcels of the herb. After extravagantly commending other waters prepared in this manner, he adds, with regard to that of rue, that the greatest commendations he can bestow upon it fall short of its merit: "What medicine (says he) can be more efficacious for promoting sweat and perspiration, for the cure of the hysteric passion and of epilepsies, and for expelling poison?" Whatever service rue may be of in the two last cases, it undoubtedly has its use in the others: the cohobated water, however, is not the most efficacious preparation of it. An extract made by rectified spirit contains in a small compass the whole virtues of the rue; this menstruum taking up by infusion all the pungency and flavour of the plant, and elevating nothing in distillation. With water, its peculiar flavour and warmth arise; the bitterness, and a considerable share of the pungency, remaining behind.

RUTA Baga, or Swedish turnip. See HUSBANDRY, p. 761.

BOOK OF RUTH, a canonical book of the Old Testament; being a kind of appendix to the book of Judges, and an introduction to those of Samuel; and having its title from the person whose story is here principally related. In this story are observable the ancient rights of kindred and redemption; and the manner of buying the inheritance of the deceased, with other particulars of great note and antiquity. The canonicalness of this book was never disputed; but the learned are not agreed about the epocha of the history it relates. Ruth the Moabitess is found in the genealogy of our Saviour. Matth. i. 5.

RUTILUS. See CYPRINUS, n° 6.

RUTHERGLEN, or by contraction RUGLEN, the head borough of the netherward of Lanarkshire in Scotland, is situated in N. Lat. 55° 51', and W. Long. 4° 13'; about two miles south-east of Glasgow, and nine west of Hamilton. Few towns in Scotland can lay greater claim to antiquity than Rutherglen. Maitland, in his History of the Antiquities of Scotland, vol. i. p. 92. tells us, that it was founded by a king Reuther, from whom it derived its name; and a tradition of the same import prevails among the inhabitants. But without laying any stress on the authority of tradition, which is often false and always doubtful, we find, from several original charters still preserved, that it was erected into a royal borough by king David I. about the year 1126.

The territory under the jurisdiction of the borough was extensive, and the inhabitants enjoyed many distinguished privileges, which were however gradually wrested from them, by political influence, in favour of Glasgow, which in latter times rose into consequence by trade and manufactures. The ancient dimensions of the place are now unknown; but, in the fields and gardens towards the east the foundations of houses are occasionally discovered. It is now of a very reduced size, consisting but of one principal street and a few lanes, and containing about 1631 inhabitants.

About 150 yards to the south of the main street

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Rutherglen.

Rutherglen.

is a kind of lane, known by the name of *Dins-dykes*. A circumstance which befel the unfortunate queen Mary, immediately after her forces were routed at the battle of Langside, has ever since continued to characterize this place with an indelible mark of opprobrium. Her majesty, during the battle, stood on a rising ground about a mile from Rutherglen. She no sooner saw her army defeated than she took her precipitate flight to the south. *Dins-dykes* unfortunately lay in her way. Two ruffies, who were at that instant cutting grafs hard by, seeing her majesty fleeing in haste, rudely attempted to intercept her, and threatened to cut her in pieces with their scythes if she presumed to proceed a step further. Neither beauty, nor even royalty itself, can at all times secure the unfortunate when they have to do with the unfeeling or the revengeful. Relief however was at hand; and her majesty proceeded in her flight.

Adjoining to a lane called the *Back-row* stood the castle of Rutherglen, originally built at a period coeval, it is reported, with the foundation of the town. This ancient fortress underwent several sieges during the unhappy wars in the days of king Robert Bruce, and it remained a place of strength until the battle of Langside; soon after which it was destroyed by order of the regent, to revenge himself on the Hamilton family, in whose custody it then was. The foundations of the buildings are now crased, and the site converted into dwelling-houses and gardens.

The kirk of Rutherglen, an ancient building of the Saxon-Gothic style, was rendered famous by two transactions, in which the fate of Sir William Wallace and his country was deeply concerned. In it a truce was concluded between Scotland and England in the year 1297 (*Henry's Life of Wallace*, Book VI. verse 862.), and in it Sir John Monteath bargained with the English to betray Wallace his friend and companion (*Life of Wallace*, Book XI. verse 796). This ancient building, having become inconvenient, was, in 1794, pulled down, and one of a modern style was erected in its place. Buried in the area were found vast quantities of human bones, and some relics of antiquity.

No borough probably in Britain possesses a political constitution or sett more free and unembarrassed than Rutherglen. It was anciently under the influence of a self-elected magistracy, many of whom lived at a distance from the borough, and who continued long in office without interruption. Negligence on the one hand, and an undue exertion of power on the other, at length excited the burgeses, about the middle of the last century, to apply an effectual remedy to this evil. The community who, at that period, possessed the power of reforming the abuses that had long prevailed in the management of the borough, were much assisted in their exertions by a Mr David Spens town-clerk, a gentleman unbiassed by false politics, and who was animated with a high degree of true patriotism. Great opposition was at first made to the reform; but the plan adopted by the burgeses was wisely laid, and was prosecuted with unremitting assiduity. They were proof against the influence and bribery of a party that struggled to continue the old practice; and having at length surmounted every difficulty, they formed a new constitution or sett for the borough, which, in 1671, was ap-

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proved of by all the inhabitants of the town, and afterwards inserted in the records of the general convention of the royal boroughs of Scotland.

Rutherglen, in conjunction with Glasgow, Renfrew, and Dumbarton, sends a member to the British parliament. The fairs of this town are generally well attended, and have long been famous for a great show of horses, of the Lanarkshire breed, which are esteemed the best draught-horses in Britain. The inhabitants of this borough still retain some customs of a very remote antiquity. One of these is the making of *Rutherglen four cakes*. The operation is attended with some peculiar rites, which lead us to conclude that the practice is of Pagan origin. An account of these rites is given in Ure's History of Rutherglen and Kilbride, p. 94.; from whence we have taken the above account of this place, and which we do not hesitate to recommend to the attention of such of our readers as are fond of natural and local history, being persuaded that they will find it to be both an useful and entertaining performance.

RUTLANDSHIRE, is the least county in England, it being but 40 miles in circumference; in which are two towns, 48 parishes, and 3263 houses. However, for quality it may be compared with any other county; the air being good, and the soil fertile both for tillage and pastures; and it not only affords plenty of corn, but feeds a great number of horned cattle and sheep. It is well watered with brooks and rivulets; and the principal rivers are the Weland and the Wash. It is bounded on the east by Lincolnshire; on the south by the river Weland, which parts it from Northamptonshire; and on the west and north by Leicestershire. It has only two market-towns; namely, Okeham, where the assizes and sessions are held, and Uppingham.

RUYSCH (Frederic), one of the most eminent anatomists of which Holland can boast, was born at the Hague in 1638. After making great progress at home, he repaired to Leyden, and there prosecuted the study of anatomy and botany. He studied next at Francker, where he obtained the degree of doctor of physic. He then returned to the Hague; and marrying in 1661, dedicated his whole time to the study of his profession. In 1665 he published a treatise, entitled *Dilucidatio valvularum de variis lymphaticis et loeis*; which raised his reputation so high, that he was chosen professor of anatomy at Amsterdam. This honour he accepted with the more pleasure, because his situation at Amsterdam would give him easy access to every requisite help for cultivating anatomy and natural history. After he settled in Amsterdam, he was perpetually engaged in dissecting and in examining with the most inquisitive eye the various parts of the human body. He improved the science of anatomy by new discoveries; in particular, he found out a way to preserve dead bodies many years from putrefaction. His anatomical collection was curious and valuable. He had a series of fetuses of all sizes, from the length of the little finger to that of a new born infant. He had also bodies of full grown persons of all ages, and a vast number of animals almost of every species on the globe, besides a great many other natural curiosities. Peter the Great of Russia, in his tour through Holland in the year 1698, visited Ruysch, and was so charmed with his conversation, that he

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passed whole days with him; and when the hour of departure came, he left him with regret. He set so high a value on Ruyfch's cabinet of curiosities, that when he returned to Holland in 1717, he purchased it for 30,000 florins, and sent it to Petersburg.

In 1685 he was made professor of medicine, an office which he discharged with great ability. In 1728 he got his thigh-bone broken by a fall in his chamber. The year before this misfortune happened he had been deprived of his son Henry, a youth of talents, and well skilled in anatomy and botany. He had been created a doctor of physic, and was supposed to have assisted his father in his discoveries and publications. Ruyfch's family now consisted only of his youngest daughter. This lady had been early inspired with a passion for anatomy, the favourite science of her father and brother, and had studied it with success. She was therefore well qualified to assist her father in forming a second collection of curiosities in natural history and anatomy, which he began to make after the emperor of Russia had purchased the first. Ruyfch is said to have been of so healthy a constitution, that though he lived to the age of 93, yet during that long period he did not labour under the infirmities of disease above a month. From the time he broke his thigh he was indeed disabled from walking without a support; yet he retained his vigour both of mind and body without any sensible alteration, till in 1731 his strength at once deserted him. He died on the 22d of February the same year. His anatomical works are printed in 4 vols 4to.

The style of his writings is simple and concise, but sometimes inaccurate. Instruction, and not ostentation, seems to be his only aim. In anatomy he undoubtedly made many discoveries; but from not being sufficiently conversant in the writings of other anatomists, he published as discoveries what had been known before. The academy of sciences at Paris in 1727 elected him a member in place of Sir Isaac Newton, who was lately deceased. He was also a member of the Royal Society of London.

RUYSER (Michael Adrian), a distinguished naval officer, was born at Fleissingue, a town of Zealand, in 1607. He entered on a sea-faring life when he was only 11 years old, and was first a cabin-boy. While he advanced successively to the rank of mate, master, and captain, he acquitted himself with ability and honour in all these employments. He repulsed the Irish, who attempted to take Dublin out of the hands of the English. He made eight voyages to the West Indies and ten to Brazil. He was then promoted to the rank of rear-admiral, and sent to assist the Portuguese against the Spaniards. When the enemy came in sight, he advanced boldly to meet them, and gave such unquestionable proofs of valour as drew from the Portuguese monarch the warmest applause. His gallantry was still more conspicuous before Salee, a town of Barbary. With one single vessel he sailed through the roads of that place in defiance of five Algerine Corsairs who came to attack him.

In 1653 a squadron of seventy vessels was dispatched against the English under the command of Van Tromp. Ruyter, who accompanied the admiral in this expedition, seconded him with great skill and bravery in the three battles which the English so gloriously won. He was afterwards stationed in the Mediterranean, where

he captured several Turkish vessels. In 1659 he received a commission to join the king of Denmark in his war with the Swedes; and he not only maintained his former reputation, but even raised it higher. As the reward of his services, the king of Denmark ennobled him and gave him a pension. In 1661 he ran ashore a vessel belonging to Tunis, released 40 Christian slaves, made a treaty with the Tunisians, and reduced the Algerine corsairs to submission. His country, as a testimony of her gratitude for such illustrious services, raised him to the rank of vice-admiral and commander in chief. To the latter dignity, the highest that could be conferred upon him, he was well intitled by the signal victory which he obtained over the combined fleets of France and Spain. This battle was fought in 1672 about the time of the conquest of Holland. The fight was maintained between the English and Dutch with the obstinate bravery of nations which were accustomed to dispute the empire of the main. Ruyter having thus made himself master of the sea, conducted a fleet of Indiamen safely into the Texel; thus defending and enriching his country, while it was become the prey of hostile invaders. The next year he had three engagements with the fleets of France and England, in which, if possible, his bravery was still more distinguished than ever. D'Estrees the French vice-admiral wrote to Colbert in these words: "I would purchase with my life the glory of De Ruyter." But he did not long enjoy the triumphs which he had so honourably won. In an engagement with the French fleet off the coast of Sicily, he lost the day, and received a mortal wound, which put an end to his life in a few days. His corpse was carried to Amsterdam, and a magnificent monument was there erected by the command of the states-general. The Spanish council bestowed on him the title of duke, and transmitted a patent investing him with that dignity; but he died before it arrived.

When some person was congratulating Louis XIV. upon De Ruyter's death, telling him he had now got rid of one dangerous enemy; he replied, "Every one must be sorry at the death of so great a man."

RYE, in botany. See SECALE.

RYE-Grass. See AGRICULTURE, n° 179.

RYE, a town in Sussex, with two markets on Wednesdays and Saturdays, but no fair. It is one of the cinque-ports; is a handsome well-built place, governed by a mayor and jurats, and sends two members to parliament. It has a church built with stone, and a town-hall; and consists of three streets, paved with stone. One side of the town has been walled in, and the other is guarded by the sea. It has two gates, and is a place of considerable trade in the shipping way. From thence large quantities of corn are exported, and many of the inhabitants are fishermen. It is 34 miles south-east by south of Tunbridge, and 64 on the same point from London. The mouth of the harbour is of late choaked up with sand; but if well opened, it would be a good station for privateers that cruise against the French. E. Long. o. 50. N. Lat. 51. o.

RYMER (Thomas), Esq; the author of the *Fædera*, was born in the north of England, and educated at the grammar-school of Northallerton. He was admitted a scholar at Cambridge, then became a member of Gray's Inn, and at length was appointed historiographer to King William in place of Mr Shadwell. He wrote A

View

Ruyter
Rymer

Rymer
||
Ryots.

View of the Tragedies of the last Age, and afterwards published a tragedy named *Edgar*. For a critic he was certainly not well qualified, for he wanted candour; nor is his judgment much to be relied on, who could condemn Shakspeare with such rigid severity. His tragedy will show, that his talents for poetry were by no means equal to those whose poems he has publicly censured. But though he has no title to the appellation of poet or critic, as an antiquarian and historian his memory will long be preserved. His *Fædera*, which is a collection of all the public transactions, treaties, &c. of the kings of England with foreign princes, is esteemed one of our most authentic and valuable records, and is oftener referred to by the best English historians than perhaps any other book in the language. It was published at London in the beginning of the present century in 17 volumes folio. Three volumes more were added by Sanderfon after Rymer's death. The whole were reprinted at the Hague in 10 vols in 1739. They were abridged by Rapin in French, and inserted in Le Clerc's *Bibliothèque*, a translation of which was made by Stephen Whitley, and printed in 4 vols 8vo, 1731.

Rymer died 14th December 1713, and was buried in the parish church of St Clement's Danes. Some specimens of his poetry are preserved in the first volume of Mr Nichol's Select Collection of Miscellaneous Poems, 1780.

RYNCHOPS, in ornithology, a genus belonging to the order of anseres. The bill is straight; and the superior mandible much shorter than the inferior, which is truncated at the point. The species are two, viz. the *nigra* and *fulva*, both natives of America.

RYOTS, in the policy of Hindostan, the modern name by which the renters of land are distinguished. They hold their possessions by a lease, which may be considered as perpetual, and at a rate fixed by ancient

surveys and valuations. This arrangement has been so long established, and accords so well with the ideas of the natives, concerning the distinction of casts, and the functions allotted to each, that it has been invariably maintained in all the provinces subject either to Mahometans or Europeans; and to both it serves as the basis on which their whole system of finance is founded.

Respecting the precise mode, however, in which the ryots of Hindostan held their possessions, there is much diversity of opinion; the chief of which are very impartially delineated in note iv. to the Appendix of Robertson's *Historical Disquisition*, &c. concerning India; p. 345. to which we refer such of our readers as are interested in this subject of finance.

RYSCHIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking with those that are doubtful. The calyx is pentaphyllous; the corolla is pentapetalous; and the apices turned back, about three times the length of the calyx; the filaments are five, awl-shaped, and shorter than the petals. The seed-vessel is quadrilocular, and contains many seeds. Of this there are two species, viz. the *Glaucifolia* and *Souroubea*.

RYSWICK, a large village in Holland, seated between the Hague and Delft, where the prince of Orange has a palace, which stands about a quarter of a mile farther. It is a very noble structure, all of hewn stone, of great extent in front, but perhaps not proportionably high. It is adorned with a marble stair-case, marble floors, and a magnificent terrace. There is a good prospect of it from the canal between Delft and the Hague. This place is remarkable for a treaty concluded here in 1697 between England, Germany, Holland, France, and Spain. E. Long. 4. 20. N. Lat. 52. 8.

Ryschia,
Ryfwick.

S.

S, s, the 18th letter and 14th consonant of our alphabet; the sound of which is formed by driving the breath through a narrow passage between the palate and the tongue elevated near it, together with a motion of the lower jaw and teeth towards the upper, the lips being a little way open; with such a configuration of every part of the mouth and larynx, as renders the voice somewhat sibilous and hissing. Its sound, however, varies; being strong in some words, as *this*, *thus*, &c. and soft in words which have a final *e*, as *muse*, *wise*, &c. It is generally doubled at the end of words, whereby they become hard and harsh, as in *kiss*, *loss*, &c. In some words it is silent, as *isle*, *island*, *viscount*, &c. In writing or printing, the long character *s* is generally used at the beginning and middle of words, but the short *s* at the end.

In abbreviations, S stands for *societas* or *socius*; as,

R. S. S. for *regia societatis socius*, i. e. fellow of the royal society. In medicinal prescriptions, S. A. signifies *secundum artem*, i. e. according to the rules of art: And in the notes of the ancients, S stands for *Sextus*; S. P. for *Spurius*; S. C. for *senatus consultum*; S. P. Q. R. for *senatus populusque Romanus*; S. S. S. for *stratum super stratum*, i. e. one layer above another alternately; S. V. B. E. E. Q. V. for *si vales bene est, ego quoque valeo*, a form used in Cicero's time, in the beginning of letters. Used as a numeral, S anciently denoted seven; in the Italian music, S signifies *solo*: And in books of navigation, S. stands for south; S. E. for south-east; S. W. for south-west; S. S. E. for south south-east; S. S. W. for south south-west &c.

SAAVEDRA (Michael de Cervantes), a celebrated Spanish writer, and the inimitable author of Don Quixote, was born at Madrid in the year 1549. From

Saavedra. his infancy he was fond of books; but he applied himself wholly to books of entertainment, such as novels and poetry of all kinds, especially Spanish and Italian authors. From Spain he went to Italy, either to serve Cardinal Aquaviva, to whom he was chamberlain at Rome; or else to follow the profession of a soldier, as he did some years under the victorious banners of Marco Antonio Colonna. He was present at the battle of Lepanto, fought in the year 1571; in which he either lost his left hand by the shot of an arquebus, or had it so maimed that he lost the use of it. After this he was taken by the Moors, and carried to Algiers, where he continued a captive five years and a half. Then he returned to Spain, and applied himself to the writing of comedies and tragedies; and he composed several, all of which were well received by the public, and acted with great applause. In the year 1584 he published his *Galatea*, a novel in six books; which he presented to Ascanio Colonna, a man of high rank in the church, as the first fruits of his wit. But the work which has done him the greatest honour, and will immortalize his name, is the history of *Don Quixote*; the first part of which was printed at Madrid in the year 1605. This is a satire upon books of knight-errantry; and the principal, if not the sole, end of it was to destroy the reputation of these books, which had so infatuated the greater part of mankind, especially those of the Spanish nation. This work was universally read; and the most eminent painters, tapestry-workers, engravers, and sculptors, have been employed in representing the history of *Don Quixote*. Cervantes, even in his lifetime, obtained the glory of having his work receive a royal approbation. As King Philip III. was standing in a balcony of his palace at Madrid, and viewing the country, he observed a student on the banks of the river Manzanares reading in a book, and from time to time breaking off and beating his forehead with extraordinary tokens of pleasure and delight: upon which the king said to those about him, "That scholar is either mad, or reading *Don Quixote*:" the latter of which proved to be the case. But *virtus laudatur et alget*: notwithstanding the vast applause his book everywhere met with, he had not interest enough to procure a small pension, but had much ado to keep himself from starving. In the year 1615, he published a second part; to which he was partly moved by the presumption of some scribbler, who had published a continuation of this work the year before. He wrote also several novels; and among the rest, "*The Troubles of Persiles and Sigismunda*." He had employed many years in writing this novel, and finished it but just before his death; for he did not live to see it published. His sickness was of such a nature, that he himself was able to be, and actually was, his own historian. At the end of the preface to the *Troubles of Persiles and Sigismunda*, he represents himself on horseback upon the road, and a student, who had overtaken him, engaged in conversation with him: "And happening to talk of my illness (says he), the student soon let me know my doom, by saying it was a dropsy I had got; the thirst attending which all the water of the ocean, though it were not salt, would not suffice to quench. Therefore Senor Cervantes, says he, you must drink nothing at all, but do not forget to eat; for this alone will recover you without any other physic. I have been told the same by others, answered I;

but I can no more forbear tipping, than if I were born to do nothing else. My life is drawing to an end; and from the daily journal of my pulse, I shall have finished my course by next Sunday at the farthest.—But adieu, my merry friends all, for I am going to die; and I hope to see you ere long in the other world, as happy as heart can wish." His dropsy increased, and at last proved fatal to him; yet he continued to say and to write bon mots. He received the last sacrament on the 18th of April 1616; yet the day after wrote a Dedication of the *Troubles of Persiles and Sigismunda* to the Condé de Lemos. The particular day of his death is not known.

SABA, a Dutch island near St Eustatia in the West Indies. It is a steep rock, on the summit of which is a little ground, very proper for gardening. Frequent rains, which do not lie any time on the soil, give growth to plants of an exquisite flavour, and cabbages of an extraordinary size. Fifty European families, with about one hundred and fifty slaves, here raise cotton, spin it, make stockings of it, and sell them to other colonies for as much as ten crowns* a pair. Throughout America there is no blood so pure as that of Saba; the women there preserve a freshness of complexion, which is not to be found in any other of the Caribbee islands. Happy colony! elevated on the top of a rock between the sky and sea, it enjoys the benefit of both elements without dreading their storms; it breathes a pure air, lives upon vegetables, cultivates a simple commodity, from which it derives ease without the temptation of riches: is employed in labours less troublesome than useful, and possesses in peace all the blessings of moderation, health, beauty, and liberty. This is the temple of peace from whence the philosopher may contemplate at leisure the errors and passions of men, who come, like the waves of the sea, to strike and dash themselves on the rich coasts of America, the spoils and possession of which they are perpetually contending for, and wrestling from each other: hence may he view at a distance the nations of Europe bearing thunder in the midst of the ocean, and burning with the flames of ambition and avarice under the heats of the tropics; devouring gold without ever being satisfied; wading through seas of blood to amass those metals, those pearls, those diamonds, which are used to adorn the oppressors of mankind; loading innumerable ships with those precious casks, which furnish luxury with purple, and from which flow pleasures, effeminacy, cruelty, and debauchery. The tranquil inhabitant of Saba views this mass of follies, and spins his cotton in peace.

SABÆANS. See **SABIANS**.

SABAZIA, in Greek antiquity, were nocturnal mysteries in honour of Jupiter Sabazius. All the initiated had a golden serpent put in at their breasts, and taken out at the lower part of their garments, in memory of Jupiter's ravishing Proserpina in the form of a serpent. There were also other feasts and sacrifices distinguished by this appellation, in honour of Mithras, the deity of the Persians, and of Bacchus, who was thus denominated by the Sabians, a people of Thrace.

SABBATARIANS, or SEVENTH DAY BAPTISTS, a sect of anabaptists; thus called, because they observed the Jewish or Saturday-Sabbath, from a persuasion that it was never abrogated in the New Testament by the institution of any other.

SABBATH,

Saba
||
Sabbatarians.

Raynal's
History,
vol. iv.

*L. i. 5. 0.

¹ Sabbath. **SABBATH**, in the Hebrew language, signifies *rest*. The seventh day was denominated the *Sabbath*, or *day of rest*, because that in it God had rested from all his works which he created and made. From that time the seventh day seems to have been set apart for religious services; and, in consequence of a particular injunction, was afterwards observed by the Hebrews as an holyday. They were commanded to set it apart for sacred purposes in honour of the creation, and likewise in memorial of their own redemption from Egyptian bondage.

² Importance of the institution and early ceremonies. The importance of the institution may be gathered from the different laws respecting it. When the ten commandments were published from Mount Sinai in tremendous pomp, the law of the Sabbath held a place in what is commonly called the first table, and by subsequent statutes the violation of it was to be punished with death. Six days were allowed for the use and service of man; but the seventh day God reserved to himself, and appointed it to be observed as a stated time for holy offices, and to be spent in the duties of piety and devotion. On this day the ministers of the temple entered upon their week; and those who had attended on the temple service the preceding week went out at the same time. New loaves of shew-bread were placed upon the golden table, and the old ones taken away. Two lambs for a burnt-offering, with a certain proportion of fine flour, mingled with oil, for a bread-offering, and wine for a libation, were offered. The Sabbath, as all other festivals, was celebrated from evening to evening. It began at six in the evening on Friday, and ended at the same time the next day.

³ Time of its institution. Concerning the time at which the Sabbath was first instituted, different opinions have been held. Some have maintained, that the sanctification of the seventh day, mentioned in Gen. ii. is only there spoken of *δια προφητείας* or by anticipation; and is to be understood of the Sabbath afterwards enjoined the children of Israel at the commencement of the Mosaic dispensation. But without entering into a particular examination of all the arguments adduced to support this opinion, a few observations, it is presumed, will be sufficient to show that it rests on no solid foundation.

It cannot easily be supposed that the inspired penman would have mentioned the sanctification of the seventh day amongst the primeval transactions, if such sanctification had not taken place until 2500 years afterwards. Writers, ambitious of that artificial elegance which the rules of criticism have established, often bring together in their narratives events which were themselves far distant, for the sake of giving form to their discourse; but Moses appears to have despised all such flimsy refinements, and to have constructed his narrative in great conformity to the series of events.

⁴ Religious service in the patriarchal age. From the accounts we have of the religious service practised in the patriarchal age, it appears that, immediately after the fall, when Adam was restored to favour through a Mediator, a stated form of public worship was instituted, which man was required to observe in testimony, not only of his dependence on the Creator, but also of his *faith* and *hope* in the promise made to our first parents, and seen afar off. Of an institution then so grand and important, no circumstance would be omitted that is necessary to preserve it, or that contributes to render the observance of it regular and solemn.

That determined times are necessary for the due celebration of divine service, cannot be denied. Such is the constitution of man, that he must have particular times set apart for particular services. He is doomed to toil and labour; to earn his bread in the sweat of his face; and is capable of performing religious duties only in such a manner as is consistent with his situation in the world. If stated times for religious solemnities had not been enjoined, the consequence would have been, that such solemnities would have been altogether neglected; for experience shows, that if mankind were left at liberty when and how often they should perform religious offices, these offices would not be performed at all. It is the observation of holy times that preserves the practice of holy services; and without the frequent and regular returns of hallowed days, man would quickly forget the duty which he owes to God, and in a short time no vestige of religion would be found in the world.

Among the ordinances which God vouchsafed his ancient people, we find that the pious observation of holydays was particularly insisted upon; and the Sabbath was enjoined to be kept holy, in the most solemn manner, and under the severest penalties. Can it then be supposed that He would suffer mankind, from the creation of the world to the Mosaic era, to remain without an institution so expedient in itself, and as well fitted to answer the end proposed by it, under the one dispensation, as ever it could be under the other? No; we have every imaginable reason to conclude, that when religious services were enjoined, religious times were appointed also; for the one necessarily implies the other.

It is no objection to the early institution of the Sabbath, that there is no mention of it in the history of the patriarchal age. It would have swelled the Bible to a most enormous size, had the sacred historian given a particular account of all the transactions of those times; besides, it would have answered no end. When Moses wrote the book of Genesis, it was unnecessary to relate minutely transactions and institutions already well known by tradition: accordingly we see, that his narrative is everywhere very concise, and calculated only to preserve the memory of the most important facts. However, if we take a view of the church-service of the patriarchal age, we shall find that what is called the *legal* dispensation, at least the liturgic part of it, was no new system, but a collection of institutions observed from the beginning, and republished in form by Moses. The Scriptures inform us that Cain and Abel offered sacrifices; and the account which is given of the acceptance of the one, and the rejection of the other, evidently shows that stated laws respecting the service had then taken place. "In process of time," *at the end of the days*, "Abel brought an offering." Here was *priest, altar, matter of sacrifice, appointed time, motive to sacrifice, atonement made, and accepted*. The distinction of animals into clean and unclean before the flood, and Noah's sacrifice immediately after his deliverance, without any new direction, is an unanswerable proof of the same truth. It is testified of Abraham, by God himself, that he kept his *charge*, his *commandments*, his *statutes*, and his *laws*. These expressions comprehend the various branches, into which the law given at Sinai was divided. They contain the moral precepts, affirmative and negative, the matter of religious service, a body of laws

Sabbath. laws to direct obedience, and to which man was to conform his conduct in every part of duty. Agreeably to this, we find that sacrifices were offered, altars and places of worship consecrated, and the *Sabbath* also mentioned as a well known solemnity, before the promulgation of the law. It is expressly taken notice of at the fall of manna; and the incidental manner in which it is then mentioned, is a convincing proof that the Israelites were no strangers to the institution: for had it been a *new* one, it must have been enjoined in a positive and particular manner, and the nature of it must have been laid open and explained, otherwise the term would have conveyed no meaning.

7
Argument
from the
general di-
vision of
time into
weeks.
* עֲשֹׂו
Seven.

The division of time into *weeks*, or periods of seven days, which obtained so early and almost universally, is a strong indication that *one* day in seven was always distinguished in a particular manner. *Week**, and *seven days*, are in scripture language synonymous terms. God commanded Noah, *seven days* before he entered the ark, to introduce into it all sorts of living creatures. When the waters of the flood began to abate, Noah sent forth a dove, which, finding no rest for the sole of her foot, returned to him. After *seven days* he sent forth the dove a second time, and again she returned to the ark. At the expiration of other *seven days* he let go the dove a third time: and a *week* is spoken of (Gen. xxix.) as a well known space of time.

This septenary division of time has been, from the earliest ages, uniformly observed over all the eastern world. The Israelites, Assyrians, Egyptians, Indians, Arabians, and Persians, have always made use of a week, consisting of seven days. Many vain attempts have been made to account for this uniformity; but a practice so general and prevalent could never have taken place, had not the septenary distribution of time been instituted from the beginning, and handed down by tradition.

From the same source also must the ancient heathens have derived their notions of the sacredness of the seventh day. That they had such notions of it is evident from several passages of the Greek poets quoted by Aristobulus, a learned Jew, by Clement of Alexandria, and Eusebius.

ἑβδομη, ἡμέραν ἡμεραν. Hesiod.

The seventh, the *sacred* day.

ἑβδοματη ἀπείτα κατὰ λυδὲν, ἡμέραν ἡμεραν. Homer.

Afterwards came the seventh, the *sacred* day.

Again:

ἑβδομη ἡμεραν ἡμεραν, καὶ τὰ τετέλεστο πάντα.

On the *seventh* day all things were completed.

ἑβδοματη δὲ καὶ τετέλεστο πάντα ἡμεραν. Linus.

All things were made *perfect* on the *seventh* day.

That they likewise held the number *seven* in high estimation has been shown by a learned, though sometimes fanciful, author*, with such evidence as to enforce conviction. The Pythagoreans call it the *venerable* number, *σέβαστον ἀριθμὸς*, *worthy of veneration*, and held it to be *perfect* and *most proper* to religion. They denominated it *fortune*, and also styled it *voice*, *sound*, *muse*, because, no doubt, *seven* distinct notes comprehend the whole scale of music, beyond which neither voice nor instrument can go, but must return from the seventh, and begin again anew. They likewise denigned it *τελευταίος*, *leading to the end*.

* *Hellonay's Originals*, vol. ii. p. 60.

Sabbath. *Seven*, in the Hebrew language, is expressed by a word that primarily signifies *fulness*, *completion*, *sufficiency*, and is applied to a *week*, or *seven days*, because that was the *full* time employed in the work of creation; to the *Sabbath*, because on it all things were *completed*; and to an *oath*, because it is *sufficient* to put an end to all strife. This opening of the Hebrew root will enable us to come at the meaning of those expressions of the heathens, and also let us see whence they derived their ideas and modes of speaking, and that the knowledge of the transactions at the creation, though much perverted, was never entirely lost by them.

It has been supposed by some, that the heathens borrowed the notion of the *sacredness* of the seventh day from the Jews. But this opinion will not readily be admitted, when it is considered that the Jews were held in the greatest contempt by the surrounding nations, who derided them no less for their sabbaths than for their circumcision. All sorts of writers ridiculed them on this account. Seneca charged them with spending the seventh part of their time in sloth. Tacitus said, that not only the seventh day, but also the seventh year, was unprofitably wasted. Juvenal brings forward the same charge; and Persius upbraided them with their *recutita sabbata*. Plutarch said that they kept it in honour of Bacchus. Tacitus affirmed, that it was in honour of Saturn; but the most abominable assertion of all is that of Apion, who said that they observed the Sabbath in memory of their being cured on that day of a shameful disease, called by the Egyptians *sabbo*.

Some perceiving the force of this objection have contended, that time was divided into weeks of seven days, that each of the planetary gods, the Sun, Moon, Mercury, Venus, Mars, Jupiter, and Saturn, who were the *Dii majorum gentium*, might have a day appropriated to his service. But if such was the origin of weeks, how came the great and ancient goddess *Tellus* to be omitted? She was worshipped by the early idolaters as well as the other planets, and must surely have been deemed by them as worthy of a particular day set apart to her honour as the planet Saturn, who was long undiscovered, afterwards seen but occasionally, and at all times considered as of malign aspect. (See REMPHAN.)

Others have supposed, that as the year was divided into lunar months of something more than 28 days, it was natural to divide the month into quarters from the different phases of the moon, which would produce as many weeks of seven days. But this supposition is less tenable than the former. The phases of the moon are not so precisely marked at the quarters as to attract to them any particular notice, nor are the quarterly appearances of one month commonly like those of another. We cannot, therefore, conceive what should have induced the earliest observers of the phases of the moon to divide the month into four parts rather than into three, or five, or seven. Had the ancient week consisted of 14 days, it might have been inferred, with some degree of plausibility, that its length was regulated by the phases of the moon, because the shape of that luminary, at the end of the second quarter, is very precisely marked; but there is nothing which, in the present hypothesis, could have everywhere led mankind to make their weeks consist of seven days. This division of time, therefore, can be accounted for only by admitting the primeval institution

stitution of the Sabbath, as related by Moses in the book of Genesis. That institution was absolutely necessary to preserve among men a sense of religion; and it was renewed to the Jews at the giving of the law, and its observance enforced by the severest penalties. It was accordingly observed by them with more or less strictness in every period of their commonwealth, and there is none of the institutions of their divine lawgiver which, in their present state of dispersion, they more highly honour. They regard it, indeed, with a superstitious reverence, call it their *spouse*, their *delight*, and speak of it in the most magnificent terms. They have often varied in their opinions of the manner in which it ought to be kept. In the time of the Maccabees, they carried their respect for the sabbath so very high, that they would not on that day defend themselves from the attacks of their enemies. But afterwards they did not scruple to stand upon their necessary defence, although they would do nothing to prevent the enemy from carrying on their operations. When our Saviour was on earth, it was no sin to loose a beast from the stall, and lead him to water; and if he had chanced to fall into a ditch, they pulled him out: but now it is absolutely unlawful to give a creature in that situation any other assistance than that of food; and if they lead an animal to water, they must take care not to let the bridle or halter hang loose, otherwise they are transgressors.

As the law enjoins rest on that day from all servile employments, in order to comply with the injunction, they undertake no kind of work on Friday but such as can easily be accomplished before evening. In the afternoon they put into proper places the meat that they have prepared to eat the day following. They afterwards set out a table covered with a clean cloth, and place bread upon it, which they also cover with another cloth; and during the sabbath the table is never moved out of its place. About an hour before sunset, the women light the sabbath lamps, which hang in the places where they eat. They then stretch forth their hands to the light, and pronounce the following benediction. "Blessed be thou, O God, king of the world, who hast enjoined us, that are sanctified by thy commandments, to light the sabbath lamp." These lamps are two or more in number, according to the size of the chamber in which they are suspended, and continue to burn during the greatest part of the night. In order to begin the sabbath well, they wash their hands and faces, trim their hair, and pare their nails, beginning at the fourth finger, then going to the second, then the fifth, then the third, and ending with the thumb. If a Jew casts the parings of his nails to the ground, he is *rafcah*, that is, a *wicked* man; for Satan has great power over those parings of nails; and it seems they are of great use to the wizzards, who know how to employ them in their enchantments. If he buries them in the earth, he is *tzedic*, that is, a *just* man; if he burns them in the fire, he is *chafid*, that is, worthy of honour, an *holy* man. When they have performed these preparatory ceremonies, they repair to the synagogue, and enter upon their devotions. As soon as prayers begin, the departed souls spring out of the purgatorial flames, and have liberty to cool themselves in water while the sabbath lasts; for which reason the Jews prolong the continuance of it as much as they can; and the Rabbins have strictly commanded them not to exhaust

all the water on the sabbath day, lest those miserable souls should by that means be deprived of the refreshing element. When they have ended their prayers, they return home, and salute one another, by wishing a good sabbath. They then sit down to table. The master of the family takes a cup full of wine, and lifting up his hand, says, "Blessed be thou, O God our Lord, king of the world, who hast created the fruit of the vine.—Blessed be thou, O God our Lord, king of the world, who hast sanctified us by thy commandments, and given us thy holy sabbath; and of thy good will and pleasure hast left it to us an inheritance, the memorial of thy works of creation. For it is the beginning of the congregation of saints, and the memorial of the coming out of Egypt. And thou hast also chosen us from all other people, and sanctified us, and with love and pleasure hast left thy holy sabbath an inheritance. Blessed be thou, O God, who sanctifiest the sabbath." After this benediction is ended, he drinks, and gives the cup to all that are present. He then removes the cloth, and taking bread, says, "Blessed be thou, O God our Lord, king of the world, who bringest bread out of the earth." Then he breaks off a bit, and eats, and also gives a piece of it to every one of the company.

On the morning of the sabbath, the Jews do not rise so early as they do at other times. Thinking, the greater pleasure they take on that day, the more devoutly they keep it. When they come into the synagogue, they pray as usual, only the devotions are somewhat longer, being intermingled with psalmody, in honour of the sabbath. The Pentateuch is then produced, and seven sections of it are read in order by seven persons chosen for the purpose. Several lessons are likewise read out of the prophets, which have some relation to what was read out of the law. After morning prayers they return to their houses, and eat the second sabbath-meal, shewing every token of joy, in honour of the festival. But if one has seen any thing ominous in his sleep; if he has dreamed that he burnt the book of the law; that a beam has come out of the walls of his house; that his teeth have fallen out;—then he fasts until very late at night, for all such dreams are bad ones. In the afternoon they go again to the synagogue, and perform the evening service, adding to the ordinary prayers some lessons that respect the sabbath. When the devotional duties are ended, they return home, and light a candle resembling a torch, and again sit down to eat. They remain eating until near six, and then the master of the family takes a cup, and pouring wine into it rehearses some benedictions; after which he pours a little of the wine upon the ground, and says, "Blessed be thou, O Lord, King of the world, who hast created the fruit of the vine." Then holding the cup in his left hand, with the right he takes a box of sweet spices, and says, "Blessed be thou, O Lord God, who hast created various kinds of sweet spices." He smells the spices, and holds them out to the rest, that they may do the same. He then takes the cup in his right hand, and going to the candle views the left very narrowly, and pronounces a blessing. With the cup in the left hand, he examines the right in the same manner. Again, holding the cup in his right hand, he rehearses another benediction, and at the same time pours some of the wine on the ground. After this he drinks a little of it, and then hands it about to the rest of the family, who finish

Sabbath. what remains. In this manner the sabbath is ended by the Jews, and they may return to their ordinary employments. Those who meet pay their compliments, by wishing one another a happy week.

10
Prohibi-
tions ob-
served.

The Rabbins have reckoned up nine and thirty primary prohibitions, which ought to be observed on the sabbatic festival; but their circumstances and dependents, which are also obligatory, are almost innumerable. The 39 articles are, Not to till the ground; to sow; to reap; to make hay; to bind up sheaves of corn; to thresh; to winnow; to grind; to sift meal; to knead the dough; to bake; to shear; to whiten; to comb or card wool; to spin; to twine or twist; to warp; to dye; to tie; to untie; to sew; to tear or pull in pieces; to build; to pull down; to beat with a hammer; to hunt or fish; to kill a beast; to slay it; to dress it; to scrape the skin; to tan it; to cut leather; to write; to scratch out; to rule paper for writing; to kindle a fire; to extinguish it; to carry a thing from place to place; to expose any thing to sale. These are the primary prohibitions, and each of these has its proper consequences, which amount to an incredible number; and the Jews themselves say, that if they could keep but two sabbaths as they ought, they would soon be delivered out of all their troubles.

If a Jew on a journey is overtaken by the sabbath in a wood, or on the highway, no matter where, nor under what circumstances, he sits down; he will not stir out of the spot. If he falls down in the dirt, he lies there; he will not rise up. If he should tumble into a privy, he would rest there: he would not be taken out (A). If he sees a flea skipping upon his clothes, he must not catch it. If it bites him, he may only remove it with his hand; he must not kill it; but a louse meets with no such indulgence, for it may be destroyed. He must not wipe his hands with a towel or cloth, but he may do it very lawfully with a cow's tail. A fresh wound must not be bound up on the sabbath-day; a plaster that had been formerly applied to a sore may remain on it; but if it falls off, it must not be put on anew. The lame may use a staff, but the blind must not. These particulars, and a great many more of the same nature, are observed by the Jews in the strictest manner. But if any one wishes to know more of the practice of that devoted race, he may consult Buxtorf's *Judaica Synagoga*, chap. x. xi. where he will find a complete detail of their customs and ceremonies on the sabbath; and likewise see the primary prohibitions branched out into their respective circumstances.

11
Institution
of Sunday
or the
Lord's
day.

As the seventh day was observed by the Jewish church, in memory of the rest of God after the works of creation, and their own deliverance from Pharaoh's tyranny; so the first day of the week has always been observed by the Christian church, in memory of the resurrection of Jesus Christ, by which he completed the work of man's redemption on earth, and rescued him from the dominion of him who has the power of death.

This day was denominated by the primitive Christians the *Lord's day*. It was also sometimes called *Sunday*; which was the name given to it by the heathens, who dedicated it to the sun. And indeed, although it was originally called *Sunday* by the heathens, yet it may very properly retain that name among Christians, because it is dedicated to the honour of "The true light," which lighteth every man that cometh into the world, of Him who is styled by the prophet "The Sun of righteousness," and who on this day arose from the dead. But although it was, in the primitive times, indifferently called the *Lord's day* or *Sunday*; yet it was never denominated the *sabbath*; a name constantly appropriated to Saturday, or the *seventh day*, both by sacred and ecclesiastical writers.

Of the change from the *seventh* to the *first day* of the week, or even of the institution of the *Lord's day* festival, there is no account in the New Testament. However, it may be fairly inferred from it, that the first day of the week was, in the apostolic age, a stated time for public worship. On this day the apostles were assembled, when the Holy Ghost came down so visibly upon them to qualify them for the conversion of the world. On this day we find St Paul preaching at Troas, when the disciples came to break bread; and the directions which the same apostle gives to the Corinthians concerning their contributions for the relief of their suffering brethren, plainly allude to their religious assemblies on the first day of the week.

Thus it would appear from several passages in the New Testament, that the religious observation of the first day of the week is of apostolical appointment; and may indeed be very reasonably supposed to be among those directions and instructions which our blessed Lord himself gave to his disciples, during the 40 days between his resurrection and ascension, wherein he conversed with them, and spoke of the things pertaining to the kingdom of God. Still, however, it must be owned that those passages, although the plainest that occur, are not sufficient to prove the apostolical institution of the *Lord's day*, or even the actual observation of it. In order, therefore, to place the matter beyond all controversy, recourse must be had to ecclesiastical testimony.

From the consentient evidence and uniform practice of the primitive church, and also from the attestation of Pliny, an heathen of no mean figure both in learning and power, we find that the first day of the week was observed in the earliest ages as an holyday or festival, in honour of the resurrection of Christ. Now there are but two sources whence the custom could possibly have arisen. It must have been instituted either by *human* or *divine* authority: by human authority it was not instituted; for there was no general council in those early times, and without the decree of a general council it was impossible that any ecclesiastical institution could have been universally established at once. It re-

13
But never-
theless it
appears to
be of di-
vine ori-
gin.

(A) This, it seems, was once really the case. A Jew of Magdeburg fell into a privy on a Saturday. He might have been taken out; but he told those who offered him their assistance to give themselves no trouble, for there he was determined to keep holy the sabbath day. The bishop, when he heard of it, resolved that he should sanctify the next day also in the same place; and so, betwixt them, the poor Jew lost his life.

Sabbath. divine authority: and that it really was so, will farther appear from the following considerations. It is certain that the apostles travelled over the greatest part of the world, and planted churches in the remotest parts of it. It is certain also that they were all led by the same *spirit*; and their desire was, that unity and uniformity should be observed in all the churches which they had founded. It is not therefore surprising that, in the primitive times, the same doctrine, the same worship, the same rites and customs, should prevail all over the Christian world; nay, it would have been unaccountable had the case been otherwise. For this reason we may conclude that every custom, universally observed in the early ages of the Christian church, and not instituted by a general council, was of original appointment.

14 Purpose for which the Lord's day was instituted. As the *Lord's day* is sanctified, that is, *set apart* to Christians for the worship and service of God, their Creator, Redeemer, and Sanctifier, a little consideration will easily discover how it ought to be observed. Although a day separated from worldly business, yet it is in no sense a day of idleness, but a season appropriated to the works of salvation and labours of charity.

15 How it was observed in the primitive times. In the primitive times this holy day was observed in the most solemn manner. From the monuments of those early ages we learn, that it was spent in a due and constant attendance on all the offices of divine worship. On it they held their religious assemblies, in which the writings of the apostles and prophets were read to the people, and the doctrines of Christianity further pressed upon them by the exhortations of the clergy. Solemn prayers and praises were offered up to God, and hymns sung in honour of Christ; the Lord's supper was constantly celebrated; and collections were made for the maintenance of the clergy and the relief of the poor. On this day they abstained, as much as they could, from bodily labour. They looked upon it as a day of joy and gladness; and therefore all fasting on it was prohibited, even during the season of lent, their great annual fast.—Such was the zeal of those times, that nothing, no not the severest persecutions, hindered them from celebrating holy offices on this day. They were often beset and betrayed, and as often slaughtered in consequence of cruel edicts from emperors, those very emperors for whose happiness and prosperity they always offered up their fervent prayers. For this cause, when they could not meet in the daytime, they assembled in the morning before it was light; and when sick, in exile, or in prison, nothing troubled them more than that they could not attend the service of the church. No trivial pretences were then admitted for any one's absence from public worship; for severe censures were passed upon all who were absent without some urgent necessity. When the empire became Christian, Constantine and his successors made laws for the more solemn observance of the Lord's day. They prohibited all prosecutions and pleadings and other juridical matters to be transacted on it, and also all unnecessary labour; not that it was looked upon as a Jewish sabbath, but because these things were considered as inconsistent with the duties of the festival.

But although the primitive Christians did not indulge themselves in the practice of unnecessary labour or trifling amusements, yet they did not wholly abstain from working, if great necessity required it. The

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Sabbath. council of *Laodicea* enjoined that men should abstain from work on the Lord's day *if possible*; but if any were found to *judaize*, they were to be censured as great transgressors. So circumspect were the primitive Christians about their conduct on this festival, that on the one hand they avoided all things which tended to profane it, whilst on the other they censured all those who insisted it should be observed with Pharisaical rigour.

The primary duty of the Lord's day is *public worship*. The nature and design of the Christian religion sufficiently shows the necessity and importance of assembling for the duties of devotion. The whole scope of Christianity is to bring us to an union with God, which cannot be obtained or preserved without frequent communications with him; and the reasons which show religious intercourse to be the indispensable duty of Christians in a private capacity, will bind it with equal or more force on them considered as a community.

The advantages of public worship, when duly performed, are many and great. There are two, however, which deserve to be considered in a particular manner. It gives Christians an opportunity of openly professing their faith, and testifying their obedience to their Redeemer in the wisest and best manner; and in an age when atheism has arisen to an alarming height, when the Son of God is crucified afresh, and put to open shame, every man, who has any regard for religion, will cheerfully embrace all opportunities of declaring his abhorrence of the vicious courses pursued by those degenerate apostates. He will with pleasure lay hold on every occasion to testify that he is neither afraid nor ashamed to confess the truth; and will think it his indispensable duty openly to disavow the sins of others, that he may not incur the guilt of partaking of them.

Public worship preserves in the minds of men a sense of religion, without which society could not exist. Nothing can keep a body of men together and unite them in promoting the public good, but such principles of action as may reach and govern the heart. But these can be derived only from a sense of religious duties, which can never be so strongly impressed upon the mind as by a constant attendance upon public worship. Nothing can be more weak than to neglect the public worship of God, under the pretence that we can employ ourselves as acceptably to our Maker at home in our closets. Both kinds of worship are indeed necessary; but one debt cannot be paid by the discharge of another. By public worship every man professes his belief in that God whom he adores, and appeals to Him for his sincerity, of which his neighbour cannot judge. By this appeal he endears himself more or less to others. It creates confidence; it roots in the heart benevolence, and all other Christian virtues, which produce, in common life, the fruits of mutual love and general peace.

People in general are of opinion that the duties of the Lord's day are over when public worship is ended. But they seem to forget for what purposes the day was set apart. It is not only appropriated to the duties of public worship, but also sanctified to our improvement in the knowledge of the doctrines of Christianity. It is an institution calculated to alleviate the condition of the laborious classes of mankind, and, in

Sabbath. consequence of that, to afford rest to *beasts* also. It is proper, it is necessary, that man should reflect on his condition in the world, that he should examine the state of his soul, and inquire what progress he has made in that work which was given him to do. Those that have children or servants are obliged to look after *their* instruction as well as their own. These are the ends which the institution of Sunday was designed to answer. Every man must allow that these things must be done at some time or other; but unless there be *set* times for doing them, the generality of mankind would wholly neglect them.

Visiting and travelling (though very common) are enormous profanations of this holy day. Families are thereby robbed of their *time*; a loss for which no amends can ever be made them: Servants, instead of having leisure to improve themselves in spiritual knowledge, are burdened with additional labour: And in a man of any humanity, it must excite many painful sensations, when he reflects how often the useful horse on that day experiences all the anguish of hunger, torn sides, and battered knees. Every kind of *amusement*, every kind of *common* labour, is an encroachment on the particular duties of the Lord's day; and consequently men profane the day by spending it in any amusements, or undertaking upon it any ordinary employment unless it be a work of absolute necessity.

SABBATH-Breaking, or profanation of the Lord's day, is punished by the municipal laws of England. For, besides the notorious indecency and scandal of permitting any secular business to be publicly transacted on that day in a country professing Christianity, and the corruption of morals which usually follows its profanation, the keeping one day in seven holy, as a time of relaxation and refreshment, as well as for public worship, is of admirable service to a state, considered merely as a civil institution. It humanizes, by the help of conversation and society, the manners of the lower classes; which would otherwise degenerate into a sordid ferocity and savage selfishness of spirit: it enables the industrious workman to pursue his occupation in the ensuing week with health and cheerfulness: it imprints on the minds of the people that sense of their duty to God so necessary to make them good citizens; but which yet would be worn out and defaced by an unremitted continuance of labour, without any stated times of recalling them to the worship of their Maker. And therefore the laws of King Athelstan forbid all merchandizing on the Lord's day, under very severe penalties. And by the statute 27 Hen. VI. c. 5. no fair or market shall be held on the principal festivals, Good-friday, or any Sunday (except the four Sundays in harvest), on pain of forfeiting the goods exposed to sale. And, since, by the statute 1 Car. I. c. 1. no persons shall assemble, out of their own parishes, for any sport whatsoever, upon this day; nor, in their parishes, shall use any bull or bear beating, interludes, plays, or other unlawful exercises or pastimes; on pain that every offender shall pay 3s. 4d. to the poor. This statute does not prohibit, but rather impliedly allows, any innocent recreation or amusement, within their respective parishes, even on the Lord's day, after divine service is over. But by statute 29 Car. II. c. 7. no person is allowed to work on the Lord's day, or use any boat or barge, or expose any goods to sale, except meat in

public houses, milk at certain hours, and works of necessity or charity, on forfeiture of 5s. Nor shall any drover, carrier, or the like, travel upon that day, under pain of 20s. Sabellians
||
Sable.

SABELLIANS, a sect of Christians of the 3d century, that embraced the opinions of Sabellius, a philosopher of Egypt, who openly taught that there is but one person in the Godhead.

The Sabellians maintained, that the Word and the Holy Spirit are only virtues, emanations, or functions of the Deity; and held, that he who is in heaven is the Father of all things, that he descended into the virgin, became a child, and was born of her as a son; and that having accomplished the mystery of our salvation, he diffused himself on the apostles in tongues of fire, and was then denominated the *Holy Ghost*. This they explained by resembling God to the sun, the illuminative virtue or quality of which was the Word, and its warming virtue the Holy Spirit. The Word, they taught, was darted, like a divine ray, to accomplish the work of redemption; and that being re-ascended to heaven, the influences of the Father were communicated after a like manner to the apostles.

SABIANS, an early sect of idolaters, which continues to this day, and worships the sun, moon, and stars. See **POLYTHEISM**, n° 10, 11, 12.

SABINA, a province of Italy, in the territories of the church; bounded on the north by Umbria, on the east by Farther Abruzzo, on the south by the Campagna of Rome, and on the west by the patrimony of St Peter. It is 22 miles in length, and almost as much in breadth; watered by several small rivers, and abounding in oil and wine. There is no walled town in it, and Magliano is the principal place.

SABINUS (George), a celebrated Latin poet, born in the electorate of Brandenburg in 1508. His poem *Res gestæ Caesarum Germanorum*, spread his reputation all over Germany, and procured him the patronage of all the princes who had any regard for polite literature: he was made professor of the belles lettres at Frankfurt on the Oder, rector of the new academy of Koningzburg, and counsellor to the elector of Brandenburg. He married two wives, the first of which was the eldest daughter of the famous reformer Melancthon; and died in 1560. His poems are well known, and have been often printed.

SABLE, or **SABLE Animal**, in zoology, a creature of the weasel-kind, called by authors *mustela xibellina*. See **MUSTELA**, n° 6.

The chase of these animals, in the more barbarous times of the Russian empire, was the employ, or rather task, of the unhappy exiles in Siberia. As that country is now become more populous, the sables have in a great measure quitted it, and retired farther north and east, to live in desert forests and mountains: they live near the banks of rivers, or in the little islands in them; on this account they have, by some, been supposed to be the *Xaβειον* of Aristotle (*Hist. An. lib. viii. c. 5.*), which he classes with the animals conversant among waters.

At present the hunters of sables form themselves into troops, from five to 40 each: the last subdivide into lesser parties, and each chooses a leader; but there is one that directs the whole: a small covered boat is provided for each party, loaded with provisions, a dog and

Sable. and net for every two men, and a vessel to bake their bread in: each party also has an interpreter for the country they penetrate into. Every party then sets out according to the course their chief points out: they go against the stream of the rivers, drawing their boats up, till they arrive in the hunting country; there they stop, build huts, and wait till the waters are frozen, and the season commences: before they begin the chase, their leader assembles them, they unite in a prayer to the Almighty for success, and then separate: the first sable they take is called *God's sable*, and is dedicated to the church.

They then penetrate into the woods; mark the trees as they advance, that they may know their way back; and in their hunting-quarters form huts of trees, and bank up the snow round them: near these they lay their traps; then advance farther, and lay more traps, still building new huts in every quarter, and return successively to every old one to visit the traps and take out the game to skin it, which none but the chief of the party must do: during this time they are supplied with provisions by persons who are employed to bring it on sledges, from the places on the road, where they are obliged to form magazines, by reason of the impracticability of bringing quantities through the rough country they must pass. The traps are a sort of pit-fall, with a loose board placed over it, baited with fish or flesh: when fables grow scarce, the hunters trace them in the new-fallen snow to their holes; place their nets at the entrance; and sometimes wait, watching two or three days for the coming out of the animal: it has happened that these poor people have, by the failure of their provisions, been so pinched with hunger, that, to prevent the cravings of appetite, they have been reduced to take two thin boards, one of which they applied to the pit of the stomach, the other to the back, drawing them tight together by cords placed at the ends: such are the hardships our fellow-creatures undergo to supply the wantonness of luxury.

The season of chase being finished, the hunters assemble, make a report to their leader of the number of fables each has taken; make complaints of offenders against their regulations; punish delinquents; share the booty; then continue at the head-quarters till the rivers are clear of ice; return home, and give to every church the dedicated furs.

SABLE Cape, the most southerly province of Nova Scotia, in North America, near which is a fine cod-fishery. W. Long. 65. 34. N. Lat. 43. 24.

Sable Isle is adjoined to this cape, and the coasts of both are most commodiously situated for fisheries.

SABLE Trade, the trade carried on in the skins or furs of fables; of which the following commercial history was translated by Mr J. R. Forster from a Russian performance on that subject by Mr Muller.

"*Sable*, *foble*, in Russian; *zobel* in German. Their price varies from 1 l. to 10 l. Sterling, and above: fine and middling sable-skins are without bellies, and the coarse ones are with them. Forty skins make a collection called *zimmer*. The finest fables are sold in pairs perfectly similar, and are dearer than single ones of the same goodness; for the Russians want those in pairs for facing caps, cloaks, tippets, &c. the blackest are reputed the best. Sables are in season from November

Sable. to February; for those caught at any other time of the year are short-haired, and then called *nedsoboli*. The hair of fables differs in length and quality: the long hairs, which reach far beyond the inferior ones, are called *os*; the more a skin has of such long hairs, the blacker it is, and the more valuable is the fur; the very best have no other but those long and black hairs. *Motchka* is a technical term used in the Russian fur-trade, expressing the lower part of the long hairs; and sometimes it comprehends likewise the lower and shorter hairs: the above-mentioned best sable furs are said to have a black motchka. Below the long hairs are, in the greater part of the sable-furs, some shorter hairs, called *podosie*, i. e. under-os; the more *podosie* a fur has, it is the less valuable: in the better kind of fables the *podosie* has black tips, and a grey or rusty motchka. The first kind of motchka makes the middling kind of sable furs; the red one the worst, especially if it has but few *os*. Between the *os* and *podosie* is a low woolly kind of hair, called *podjada*. The more *podjada* a fur has, the less valuable: for the long hair will, in such case, take no other direction than the natural one; for the characters of sable is, that notwithstanding the hair naturally lies from the head towards the tail, yet it will lie equally in any direction as you strike your hand over it. The various combinations of these characters, in regard to *os*, motchka, *podosie*, and *podjada*, make many special divisions in the goodness of furs: besides this, the furriers attend to the size, preferring always, *ceteris paribus*, the biggest, and those that have the greatest gloss. The size depends upon the animal being a male or a female, the latter being always smaller. The gloss vanishes in old furs: the fresh ones have a kind of bloomy appearance, as they express it; the old ones are said to have done blooming: the dyed fables always lose their gloss; become less uniform, whether the lower hairs have taken the dye or not; and commonly the hairs are somewhat twisted or crisped, and not so straight as in the natural ones. Some fumigate the skins, to make them look blacker; but the smell, and the crisped condition of the long hair, betrays the cheat; and both ways are detected by rubbing the fur with a moist linen cloth, which grows black in such cases.

"The Chinese have a way of dyeing the fables, so that the colour not only lasts (which the Russian cheats cannot do), but the fur keeps its gloss, and the crisped hairs only discover it. This is the reason that all the fables, which are of the best kind, either in pairs or separate, are carried to Russia; the rest go to China. The very best fables come from the environs of Nerchitsk and Yakutsk; and in this latter district, the country about the river Ud affords sometimes fables, of whom one single fur is often sold at the rate of 60 or 70 rubles, 12 l. or 14 l. The bellies of fables, which are sold in pairs, are about two fingers breadth, and are tied together by 40 pieces, which are sold from 1 l. to 2 l. Sterling. Tails are sold by the hundred. The very best sable-furs must have their tails; but ordinary fables are often cropped, and 100 sold from 4 l. to 8 l. Sterling. The legs or feet of fables are seldom sold separately; white fables are rare, and no common merchandise, but bought only as curiosities: some are yellowish, and are bleached in the spring on the snow."

Sable
Saccade.

SABLE, in heraldry, signifies "black;" and is borrowed from the French, as are most terms in this science: in engraving it is expressed by both horizontal and perpendicular lines crossing each other. Sable of itself signifies constancy, learning, and grief; and ancient heralds will have it, that when it is compounded with

Or	} it signifies	Honour.
Arg.		Fame.
Gul.		Respect.
Azu.		Application.
Ver.		Comfort.
Pur.		Austerity.

The occasion that introduced this colour into heraldry is thus related by Alexander Nisbet, p. 8. The duke of Anjou, king of Sicily, after the loss of that kingdom, appeared at a tournament in Germany all in black, with his shield of that tincture, *semé de larmes*, i. e. besprinkled with drops of water, to represent tears, indicating by that both his grief and loss.

SABLESTAN, or **SABLUSTAN**, a province of Asia, in Persia, on the frontiers of Indostan; bounded on the north by Khorasan; on the east, by the mountains of Balk and Candahar; on the south, by Sageshan or Segestan; and on the west, by Heri. It is a mountainous country, very little known to Europeans; nor is it certain which is the capital town.

SABRE, a kind of sword or scimitar, with a very broad and heavy blade, thick at the back, and a little falcated or crooked towards the point. It is the ordinary weapon worn by the Turks, who are said to be very expert in the use of it.

SABURRA, in medicine, usually denotes any collection of half putrid indigested matter in the stomach and intestines, by which the operation of digestion is impeded.

SABURRÆ, **GRITTS**, in natural history; a genus of fossils, found in minute masses, forming together a kind of powder, the several particles of which are of no determinate shape, nor have any tendency to the figure of crystal, but seem rudely broken fragments of larger masses; not to be dissolved or disunited by water, but retaining their figure in it, and not cohering by means of it into a mass; considerably opaque, and in many species fermenting with acids; often fouled with heterogeneous matters, and not unfrequently taken in the coarser stony and mineral or metalline particles.

Gritts are of various colours, as, 1. The stony and sparry gritts, of a bright or greyish white colour. 2. The red stony gritts. 3. The green stony gritts, composed of homogeneous sparry particles. 4. The yellow gritt, of which there is only one species. 5. The black and blackish gritts, composed of stony or talky particles.

SACÆA, a feast which the ancient Babylonians and other orientals held annually in honour of the deity Anaitis. The Sacæa were in the East what the Saturnalia were at Rome, viz. a feast for the slaves. One of the ceremonies was to choose a prisoner-condemned to death, and allow him all the pleasures and gratifications he would wish, before he were carried to execution.

SACCADE, in the manege, is a jerk more or less violent, given by the horseman to the horse, in pulling or twitching the reins of the bridle all on a sudden

and with one pull, and that when a horse lies heavy upon the hand, or obstinately arms himself.

This is a correction used to make a horse carry well; but it ought to be used discreetly, and but seldom.

SACERDOTAL, something belonging to priests. See **PRIEST**.

SACCOLUS, in anatomy, a diminutive of faccus, signifies a little bag, and is applied to many parts of the body.

SACCHARUM, **SUGAR**, or the *Sugar-Cane*, in botany: A genus of the digynia order, belonging to the triandria class of plants; and in the natural method ranking under the 4th order, *Gramina*. There is no calyx, but a long down; the corolla is bivalved. There is but one species of this genus, viz. the officina. It is a native of Africa, the East Indies, and of Brazil; from whence it was introduced into our West India islands soon after they were settled. The sugar-cane is the glory and the pride of those islands. It amply rewards the industrious planter, enriches the British merchant, gives bread to thousands of manufacturers and seamen, and brings an immense revenue to the crown. For the process of making sugar, see **SUGAR**.

Sugar, formerly a luxury, is now become one of the necessities of life. In crop-time every negro on the plantations, and every animal, even the dogs, grow fat. This sufficiently points out the nourishing and healthy qualities of sugar. It has been alleged, that the eating of sugar spoils the colour of, and corrupts, the teeth: this, however, proves to be a mistake, for no people on the earth have finer teeth than the negroes in Jamaica. Dr Alston, formerly professor of botany and materia medica at Edinburgh, endeavoured to obviate this vulgar opinion: he had a fine set of teeth, which he ascribed solely to his eating great quantities of sugar. Externally too it is often useful: mixed with the pulp of roasted oranges, and applied to putrid or ill-disposed ulcers, it proves a powerful corrector.

SACCHI (Andrea), a celebrated painter, born at Rome in 1594. He was the disciple of Francisco Albano, whom he afterwards surpassed in taste and correctness. He distinguished himself in a very eminent degree by his paintings in fresco; and a strong emulation subsisting between him and Pietro de Cortona, they each arrived at a degree of perfection that neither of them might have known without such a competition. The works of Sacchi have such intrinsic merit, and are finished with such uncommon care and skill, as will always secure the applause of the judicious, and preserve their true value. He died in 1668.

SACHEVEREL (Dr Henry), a famous clergyman of the Tory faction in the reign of queen Anne; who distinguished himself by indecent and scurrilous sermons and writings against the dissenters and revolution principles. He owed his consequence, however, to being indiscreetly prosecuted by the house of lords for his assize-sermon at Derby, and his 5th of November sermon at St Paul's in 1709; in which he asserted the doctrine of non-resistance to government in its utmost extent; and reflected severely on the act of toleration. The high and low church parties were very violent at that time; and the trial of Sacheverel inflamed the high-church party to dangerous riots and excesses: he was, however, suspended for three years, and his sermons burned by the common hangman. The Tories being

ack
ville.

in administration when Sacheverel's suspension expired, he was freed with every circumstance of honour and public rejoicing; was ordered to preach before the commons on the 29th of May, had the thanks of the house for his discourse, and obtained the valuable rectory of St. Andrew's, Holborn.

SACK, a wine used by our ancestors, which some have taken to be Rhenish and some Canary wine.—Venner, in his *Via Recta ad Vitam Longam*, printed in 1628, says that sack is "completely not in the third degree, and that some affect to drink sack with sugar and some without; and upon no other ground, as I think, but as it is best pleasing to their palate." He goes on to say, "that sack, taken by itself, is very hot and very penetrative; being taken with sugar, the heat is both somewhat allayed, and the penetrative quality thereof also retarded." He adds further, that Rhenish, &c. decline after a twelvemonth, but sack and the other stronger wines are best when they are two or three years old. It appears to be highly probable that sack was not a sweet wine, from its being taken with sugar, and that it did not receive its name from having a saccharine flavour, but from its being originally stored in sacks or borachios. It does not appear to have been a French wine, but a strong wine the production of a hot climate. Probably it was what is called dry mountain, or some Spanish wine of that kind. This conjecture is the more plausible, as Howell, in his French and English Dictionary, printed in the year 1650, translates sack by the words *vin d'Espagne, vin sec*.

SACK of Wool, a quantity of wool containing just 22 stone, and every stone 14 pounds. In Scotland, a sack is 24 stone, each stone containing 16 pounds.

SACK of Cotton Wool, a quantity from one hundred and a half to four hundred weight.

SACKS of Earth, in fortification, are canvas bags filled with earth. They are used in making retrenchments in haste, to place on parapets, or the head of the breaches, &c. to repair them, when beaten down.

SACKBUT, a musical instrument of the wind kind, being a sort of trumpet, though different from the common trumpet both in form and size; it is fit to play a bass, and is contrived to be drawn out or shortened, according to the tone required, whether grave or acute. The Italians call it *trombone*, and the Latins *tuba ductilis*.

SACKVILLE (Thomas, Lord Buckhurst, and earl of Dorset), a statesman and poet, the son of Richard Sackville, Esq; of Buckhurst, in the parish of Withiam in Suffex, was born in the year 1536. He was sent to Hart-hall in Oxford, in the latter end of the reign of Edward VI. whence he removed to Cambridge, where he took a master of arts degree, and thence to the Inner Temple. He now applied himself to the study of the law, and was called to the bar. We are told that he commenced poet whilst at the universities, and that these his juvenile productions were much admired, none of which, however, have been preserved.—In the fourth and fifth year of queen Mary, we find him a member of the house of commons; about which time, in 1557, he wrote a poetical piece, intitled *The Induction, or The Mirror of Magistrates*. This last was meant to comprehend all the unfortunate Great from the beginning of our history; but the design being dropped, it was inserted in the body of the work. The

Mirror of Magistrates is formed on a dramatic plan; Sackville, in which the persons are introduced speaking. The Induction is written much in the style of Spencer, who, with some probability, is supposed to have imitated this author.

In 1561, his tragedy of *Gorboduc* was acted before queen Elizabeth by the gentlemen of the Inner Temple. This was the first tolerable tragedy in our language. The Companion to the Play-house tells us, that the three first acts were written by Mr Tho. Norton. Sir Philip Sidney, in his Apology for Poetry, says, "it is full of stately speeches, and well-sounding phrases, climbing to the height of Seneca in his style, &c." Rymer speaks highly in its commendation. Mr Spence, at the instigation of Mr Pope, republished it in 1736, with a pompous preface. It is said to be our first dramatic piece written in verse.

In the first parliament of this reign, Mr Sackville was member for Suffex, and for Bucks in the second. In the mean time he made the tour of France and Italy, and in 1566 was imprisoned at Rome, when he was informed of his father's death, by which he became possessed of a very considerable fortune.

Having now obtained his liberty, he returned to England; and being first knighted was created Lord Buckhurst. In 1570 he was sent ambassador to France. In 1586 he was one of the commissioners appointed to try the unfortunate Mary queen of Scots; and was the messenger employed to report the confirmation of her sentence, and to see it executed. The year following he went ambassador to the States General, in consequence of their complaint against the earl of Leicester; who, disliking his impartiality, prevailed on the queen to recal him, and confine him to his house. In this state of confinement he continued about 10 months, when Leicester dying, he was restored to favour, and in 1580 was installed knight of the garter: but the most incontrovertible proof of the queen's partiality for lord Buckhurst appeared in the year 1591, when she caused him to be elected chancellor in the university of Oxford, in opposition to her favourite Essex. In 1598, on the death of the treasurer Burleigh, lord Buckhurst succeeded him, and by virtue of his office became in effect prime minister; and when, in 1601, the earls of Essex and Southampton were brought to trial, he sat as lord high steward on that awful occasion.

On the accession of James I. he was graciously received, had the office of lord high treasurer confirmed to him for life, and was created earl of Dorset. He continued in high favour with the king till the day of his death; which happened suddenly, on the 19th of April 1608, in the council-chamber at Whitehall. He was interred with great solemnity in Westminster abbey. He was a good poet, an able minister, and an honest man. From him is descended the present noble family of the Dorsets. "It were needless (says Mr Walpole) to add, that he was the patriarch of a race of genius and wit."

SACKVILLE (Charles, earl of Dorset), a celebrated wit and poet, descended from the foregoing, was born in 1637. He was, like Villiers, Rochester, Sedley, &c. one of the libertines of king Charles's court, and sometimes indulged himself in inexcusable excesses. He openly discountenanced the violent measures of James II. and engaged early for the prince of Orange,

Sacrament. Orange, by whom he was made lord chamberlain of the household, and taken into the privy-council. He died in 1706, and left several poetical pieces, which, though not considerable enough to make a volume by themselves, may be found among the works of the minor poets, published in 1749.

SACRAMENT is derived from the Latin word *sacramentum*, which signifies an oath, particularly the oath taken by soldiers to be true to their country and general. The words of this oath, according to Polybius, were, *obtemperaturus sum et facturus quicquid mandabitur ab imperatoribus juxta vires*. The word was adopted by the writers of the Latin church, and employed, perhaps with no great propriety, to denote those ordinances of religion by which Christians came under an obligation, equally sacred with that of an oath, to observe their part of the covenant of grace, and in which they have the assurance of Christ that he will fulfil his part of the same covenant.

Of sacraments, in this sense of the word, Protestant churches admit of but two; and it is not easy to conceive how a greater number can be made out from Scripture, if the definition of a sacrament be just which is given by the church of England. By that church, the meaning of the word sacrament is declared to be "an outward, and visible sign of an inward and spiritual grace given unto us, ordained by Christ himself as a means whereby we receive the same, and a pledge to assure us thereof." According to this definition, baptism and the Lord's Supper are certainly sacraments; for each consists of an outward and visible sign of what is believed to be an inward and spiritual grace; both were ordained by Christ himself, and by the reception of each does the Christian come under a solemn obligation to be true to his divine master, according to the terms of the covenant of grace. (See **BAPTISM** and **SUPPER of the Lord**.) The Romanists, however, add to this number *confirmation, penance, extreme unction, ordination, and marriage*, holding in all seven sacraments; but two of those rites not being peculiar to the Christian church cannot possibly be *Christian* sacraments, in contradistinction to the sacraments or obligations into which men of all religions enter. Marriage was instituted from the beginning, when God made man male and female, and commanded them to be fruitful, and multiply and replenish the earth; and penance, as far as it is of the same import with repentance, has a place in all religions which teach that God is merciful, and men fallible.—The external severities imposed upon penitents by the church of Rome (see **PENANCE**) may indeed be in some respects peculiar to the discipline of that church, though the penances of the Hindoos are certainly as rigid; but none of these severities were ordained by Christ himself as the pledge of an inward and spiritual grace; nor do they, like baptism and the Lord's Supper, bring men under obligations which are supposed to be analogous to the meaning of the word *sacramentum*. Confirmation has a better title to the appellation of a sacrament than any of the other five popish rites of that name, though it certainly was not considered as such by the earliest writers of the Christian church, nor does it appear to have been ordained by Christ himself, (see **CONFIRMATION**). Ordination is by many churches considered as a very important rite; but as it is not administered to *all* men, nor has any particular form ap-

propriated to it in the New Testament, it cannot be considered as a Christian sacrament conferring grace generally necessary to salvation. It is rather a form of authorising certain persons to perform certain offices, which respect not themselves but the whole church; and extreme unction is a rite which took its rise from the miraculous powers of the primitive church vainly claimed by the succeeding clergy. (See **ORDINATION** and *Extreme Unction*.) These considerations seem to have some weight with the Romish clergy themselves; for they call the eucharist, by way of eminence, the *holy sacrament*. Thus to expose the holy sacrament, is to lay the consecrated host on the altar to be adored.—The procession of the holy sacrament is that in which this host is carried about the church, or about a town.

Numerous as we think the sacraments of the Romish church, a sect of Christians sprung up in England early in the current century who increased their number.—The founder of this sect was a Dr Deacon, we think, of Manchester, where the remains of it subsisted very lately, and probably do so at present. According to these men, every *rite* and every *phrase* in the book called the *Apostolical Constitutions* were certainly in use among the apostles themselves. Still, however, they make a distinction between the greater and the lesser sacraments. The greater sacraments are only two, baptism and the Lord's supper. The lesser are no fewer than ten, viz. five belonging to baptism, *exorcism, anointing with oil, the white garment, a taste of milk and honey, and anointing with chrism or ointment*. The other five are, *the sign of the cross, imposition of hands, unction of the sick, holy orders, and matrimony*. Of the nature of these lesser sacraments, or the grace which they are supposed to confer, our limits will permit us to give no account.—Nor is it necessary that we should. The sect which taught them, if not extinguished, is certainly in its last wane. It has produced, however, one or two learned men; and its founder's Full, True, and Comprehensive View of Christianity, in two Catechisms, is a work which the Christian antiquary will read with pleasure for information, and the philosopher for the materials which it contains for meditation on the workings of the human mind. It was published in 8vo, in the year 1748.

Congregation of the Holy SACRAMENT, a religious establishment formed in France, whose founder was Autherius, bishop of Bethlehem, and which, in 1644, received an order from Urban VIII. to have always a number of ecclesiastics ready to exercise their ministry among pagan nations, wherever the pope, or congregation *de propaganda*, should appoint.

SACRAMENTARIANS, a general name given to all such as have published or held erroneous doctrines of the sacrament of the Lord's Supper. The term is chiefly applied among Roman Catholics, by way of reproach, to the Lutherans, Calvinists, and other Protestants.

SACRAMENTARY, an ancient Romish church-book, which contains all the prayers and ceremonies practised at the celebration of the sacraments.

It was wrote by pope Gelasius, and afterwards revised, corrected, and abridged, by St Gregory.

SACRE, or **SAKER**, in ornithology, the name of a species of falcon, called by authors *falco sacer*, and differently

ered,
ritice.

ently described by different authors, but by all agreed to be an extremely bold and active bird. It is a native of the northern regions of Europe; and a variety called by some writers the *speckled partridge hawk* is found at Hudson's bay, North America.

SACRED, something holy, or that is solemnly offered and consecrated to God, with benedictions, unctions, &c.

Kings, prelates, and priests, are reckoned sacred persons; abbots are only blessed. — The deaconhood, sub-deaconhood, and priesthood, are all sacred orders, and are said to impress a sacred indelible character. The custom of consecrating kings with holy oil is derived (says Gutlingius) from the Hebrews; among whom, he agrees with Grotius, it was never used but to kings who had not an evident right by succession. He adds, that the Christian emperors never used it before Justin the younger; from whom he takes it to have passed to the Goths, &c.

SACRED is also applied to things belonging to God and the church. Church-lands, ornaments, &c. are held sacred. — The sacred college is that of the cardinals.

SACRED Majesty, is applied to the emperor and to the king of England; yet Loyseau says it is blasphemy. See **MAJESTY**. The ancients held a place struck with thunder as sacred. In the civil law, sacred place chiefly denotes that where a person deceased has been interred.

SACRED Elixir. See **ELIXIR**.

SACRIFICE, an offering made to God on an altar, by means of a regular minister; as an acknowledgment of his power, and a payment of homage. Sacrifices (though the term is sometimes used to comprehend all the offerings made to God, or in any way devoted to his service and honour) differ from mere oblations in this, that in a sacrifice there is a real destruction or change of the thing offered; whereas an oblation is only a simple offering or gift, without any such change at all: thus, all sorts of tithes, and first fruits, and whatever of mens worldly substance is consecrated to God, for the support of his worship and the maintenance of his ministers, are offerings or oblations: and these, under the Jewish law, were either of living creatures or other things: but sacrifices, in the more peculiar sense of the term, were either wholly or in part consumed by fire. They have by divines been divided into bloody and unbloody. Bloody sacrifices were made of living creatures; unbloody of the fruits of the earth. They have also been divided into *expiatory*, *impetratory*, and *eucharistical*. The first kind were offered to obtain of God forgiveness of sins; the second, to procure some favour; and the third, to express thankfulness for favours already received. Under one or other of these heads may all sacrifices be arranged; though we are told, that the Egyptians had 666 different kinds, a number surpassing all credibility.

Concerning the origin of sacrifices very various opinions have been held. By many, the Phœnicians are supposed to have been the authors of them; though Porphyry attributes their invention to the Egyptians; and Ovid imagines, from the import of the name *victim* and *hostia*, that no bloody sacrifices were offered till wars prevailed in the world; and nations obtained victories

over their enemies. These are mere hypotheses, contradicted by the most authentic records of antiquity, and entitled to no regard.

By modern deists, sacrifices are said to have had their origin in superstition, which operates much in the same way in every country. It is therefore weak, according to those men, to derive this practice from any particular people; since the same mode of reasoning would lead various nations, without any intercourse with each other, to entertain the same opinions respecting the nature of their gods, and the proper means of appealing their anger. Men of gross conceptions imagine their deities to be like themselves, covetous and cruel. They are accustomed to appease an injured neighbour by a composition in money; and they endeavour to compound in the same manner with their gods, by rich offerings to their temples and to their priests. The most valuable property of a simple people is their cattle. These offered in sacrifice are supposed to be fed upon by the divinity, and are actually fed upon by his priests. If a crime is committed which requires the punishment of death, it is accounted perfectly fair to appease the deity by offering one life for another; because, by savages, punishment is considered as a debt for which a man may compound in the best way that he can, and which one man may pay for another. Hence, it is said, arose the absurd notions of imputed guilt and vicarious atonement. Among the Egyptians, a white bull was chosen as an expiatory sacrifice to their god Apis. After being killed at the altar, his head was cut off, and cast into the river, with the following execration: "May all the evils impending over those who perform this sacrifice, or over the Egyptians in general, be averted on this head *."

* Herodotus,

Had sacrifice never prevailed in the world but among such gross idolaters as worshipped departed heroes, who were supposed to retain in their state of deification all the passions and appetites of their mortal state, this account of the origin of that mode of worship would have been to us perfectly satisfactory. We readily admit, that such mean notions of their gods may have actually led far distant tribes, who could not derive any thing from each other through the channel of tradition, to imagine that beings of human passions and appetites might be appeased or bribed by costly offerings. But we know from the most incontrovertible authority, that sacrifices of the three kinds that we have mentioned were in use among people who worshipped the true God, and who must have had very correct notions of his attributes. Now we think it impossible that such notions could have led any man to fancy that the taking away of the life of a harmless animal, or the burning of a cake or other fruits of the earth in the fire, would be acceptable to a Being self-existent, omnipotent, and omniscient, who can neither be injured by the crimes of his creatures, nor receive any accession of happiness from a thousand worlds.

Sensible of the force of such reasoning as this, some persons of great name, who admit the authenticity of the Jewish and Christian sacrifices, and firmly rely on the atonement made by Christ, are yet unwilling (it is difficult to conceive for what reason) to allow that sacrifices were originally instituted by God. Of this way of thinking were St Chrysostom, Spencer, Grotius, and Warburton, as were likewise the Jews Maimonides, R.

Levi,

Sacrifice.

Levi, Ben Gerson, and Abarbanel. The greater part of these writers maintain, that sacrifices were at first a human institution; and that God, in order to prevent their being offered to idols, introduced them into his service, though he did not approve of them as good in themselves, or as proper rites of worship. That the infinitely wise and good God should introduce into his service improper rites of worship, appears to us so extremely improbable, that we cannot but wonder how such an opinion should ever have found its way into the minds of such men as those who held it. Warburton's theory of sacrifice is much more plausible, and being more lately published, is worthy of particular examination.

According to this ingenious prelate, sacrifices had their origin in the sentiments of the human heart, and in the ancient mode of conversing by action in aid of words. Gratitude to God for benefits received is natural to the mind of man, as well as his bounden duty. "This duty (says the bishop *) was in the most early times discharged in expressive actions, the least equivocal of which was the offerer's bringing the first fruits of pasturage or agriculture to that sequestered place where the Deity used to be more solemnly invoked, at the stated times of public worship; and there presenting them in homage, with a demand which spoke to this purpose. — 'I do hereby acknowledge thee, O my God! to be the author and giver of all good: and do now, with humble gratitude, return my warmest thanks for these thy blessings particularly bestowed upon me.'—Things thus devoted became thenceforth sacred: and to prevent their desecration, the readiest way was to send them to the table of the priest, or to consume them in the fire of the altar. Such, in the opinion of our author, was the origin of eucharistical sacrifices. *Impetratory* or *precative* sacrifices had, he thinks, the same origin, and were contrived to express by action an invocation for the continuance of God's favour. "Expiatory sacrifices (says the learned prelate) were in their own nature as intelligible, and in practice as rational, as either of the other two. Here, instead of presenting the first fruits of agriculture and pasturage, in corn, wine, oil, and wool, as in the eucharistical, or a portion of what was to be sown or otherwise propagated, as in the *impetratory*; some chosen animal precious to the repenting criminal, who deprecates or supposed to be obnoxious to the Deity who is to be appeased, was offered up and slain at the altar, in an action which, in all languages, when translated into words, speaks to this purpose:—'I confess my transgressions at thy footstool, O my God! and with the deepest contrition implore thy pardon; confessing that I deserve death for those my offences.'—The latter part of the confession was more forcibly expressed by the *action* of striking the devoted animal, and depriving it of life; which, when put into words, concluded in this manner.—'And I own that I myself deserve the death which I now inflict on this animal.'

This system of sacrifice, which his lordship thinks so well supported by the most early movements of simple nature, we admit to be ingenious, but by no means satisfactory. That mankind in the earlier ages of the world were accustomed to supply the deficiencies of their language by expressive gesticulations we are not inclined to controvert: the custom prevails among savage nations, or nations half civilized, at the present day. His

lordship, however, is of opinion, and we heartily agree with him, that our first parents were instructed by God to make articulate sounds significant of ideas, notions, and things (see LANGUAGE, n° 6.), and not left to fabricate a language for themselves. That this heaven-taught language could be at first copious, no man will suppose who thinks of the paucity of ideas which those who spoke it had to express; but when we consider its origin, we cannot entertain a doubt but that it was precise and perspicuous, and admirably adapted to all the real purposes of life. Among these purposes must surely be included the worship of God as the most important of all. Every sentiment therefore which enters into worship, gratitude, invocation, confession, and deprecation, the progenitors of mankind were undoubtedly taught to clothe in words the most significant and unequivocal; but we know from Moses, whose divine legation the bishop surely admitted, that Cain and Abel, the eldest children of our first parents, worshipped God by the rites of sacrifice: and can we suppose that this practice occurred to them from their having so far forgotten the language taught them by their father, as to be under the necessity of denoting by action what they could not express by words? If this supposition be admitted, it will force another upon us still more extravagant. Even Adam himself must, in that case, have become dumb in consequence of his fall; for it is not conceivable, that as long as he was able to utter articulate sounds, and affix a meaning to them, he would cease, in the presence of his family, to confess his sins, implore forgiveness, and express his gratitude to God for all his mercies.

The right reverend writer, as if aware of some such objection as this to his theory, contends, that if sacrifices had arisen from any other source than the light of reason, the Scripture would not have been silent concerning that source; "especially since we find Moses carefully recording what God immediately, and not *nature*, taught to Adam and his family. Had the original of sacrifice, says he, been prescribed, and directly commanded by the Deity, the sacred historian could never have omitted the express mention of that circumstance. The two capital observances in the Jewish ritual were the SABBATH and SACRIFICES. To impress the highest reverence and veneration on the Sabbath, he is careful to record its divine original: and can we suppose that, had sacrifices had the same original, he would have neglected to establish this truth at the time that he recorded the other, since it is of equal use and of equal importance? I should have said, indeed, of much greater; for the multifarious sacrifices of the LAW had not only a reference to the forfeiture of Adam, but likewise prefigured our redemption by Jesus Christ."

But all this reasoning was foreseen, and completely answered before his lordship gave it to the public. It is probable, that though the distinction of weeks was well known over all the eastern world, the Hebrews, during their residence in Egypt, were very negligent in their observance of the Sabbath. To enforce a religious observance of that sacred day, it became necessary to inform them of the time and occasion of its first institution, that they might keep it holy in memory of the creation; but, in a country like Egypt, the people were in danger of holding sacrifices rather in too high than too low veneration, so that there was not the same necessity

* Divine
Leg. b. ix.
c. 2.

Sacrifice

sacrifice. necessity for mentioning explicitly the early institution of them. It was sufficient that they knew the divine institution of their own sacrifices, and the purposes for which they were offered. Besides this, there is reason to believe, that, in order to guard the Hebrews from the infections of the heathen, the rite of sacrificing was loaded with many additional ceremonies at its second institution under Moses; It might, therefore, be improper to relate its original simplicity to a rebellious people, who would think themselves ill-used by any additional burdens of trouble or expence, however really necessary to their happiness. Bishop Warburton sees clearly the necessity of concealing from the Jews the spiritual and refined nature of the Christian dispensation, lest such a backsliding people should, from the contemplation of it, have held in contempt their own economy. This, he thinks, is the reason why the prophets, speaking of the reign of the Messiah, borrow their images from the Mosaic dispensation, that the people living under that dispensation might not despise it from perceiving its end; and we think the reason will hold equally good for their law-giver concealing from them the simplicity of the first sacrifices, lest they should be tempted to murmur at their own multifarious ritual.

But his lordship thinks that sacrifices had their origin from the light of natural reason. We should be glad to know what light natural reason can throw upon such a subject. That ignorant pagans, adoring as gods departed heroes, who still retained their sensual appetites, might naturally think of appeasing such beings with the fat of fed beasts, and the perfumes of the altar, we have already admitted; but that Cain and Abel, who knew that the God whom they adored has neither body, parts, nor passions; that he created and sustains the universe; and that from his very nature he must will the happiness of all his creatures, should be led by the light of natural reason to think of appeasing him, or obtaining favours from him, by putting to death harmless animals, is a position which no arguments of his lordship can ever compel us to admit. That Abel's sacrifice was indeed accepted, we know; but it was not accepted because it proceeded from the movements of the human mind, and the deficiency of the original language, but because it was offered through *faith*. The light of natural reason, however, does not generate faith, but science; and when it fails of that, its offspring is absurdity. "Faith is the substance of things hoped for, the evidence of things not seen," and comes not by reasoning but by hearing. What things then were they of which Abel had heard, for which he hoped, and in the faith of which he offered sacrifice? Undoubtedly it was a restoration to that immortality which was forfeited by the transgression of his parents. Of such redemption an obscure intimation had been given to Adam, in the promise that the seed of the woman should bruise the head of the serpent; and it was doubtless to impress upon his mind in more striking colours the manner in which this was to be done, that bloody sacrifices were first instituted †. As long as the import of such rites was thus understood, they constituted a perfectly rational worship, as they showed the people that the wages of sin is death; but when men sunk into idolatry, and lost all hopes of a resurrection from the dead, the slaughtering of animals to appease their deities was a practice grossly superstitious. It re-

ed in itself without pointing to any farther end, and the grovelling worshippers believed that by their sacrifices they purchased the favour of their deities. When once this notion was entertained, human sacrifices were soon introduced; for it naturally occurred to those who offered them, that what they most valued themselves would be most acceptable to their offended gods, (see the next article). By the Jewish law, these abominable offerings were strictly forbidden, and the whole ritual of sacrifice restored to its original purity, though not simplicity.

All Christian churches, the Socinian, if it can be called a church, not excepted, have till very lately agreed in believing that the Jewish sacrifices served, amongst other uses, for types of the death of Christ and the Christian worship, (see TYPE.) In this belief all sober Christians agree still, whilst many are of opinion that they were likewise federal rites, as they certainly were considered by the ancient Romans *.

Of the various kinds of Jewish sacrifices, and the subordinate ends for which they were offered, a full account is given in the books of Moses. When an Israelite offered a loaf or a cake, the priest broke it in two parts; and setting aside that half which he reserved for himself, broke the other into crumbs, poured oil, wine, incense, and salt upon it, and spread the whole upon the fire of the altar. If these offerings were accompanied with the sacrifice of an animal, they were thrown upon the victim to be consumed along with it. If the offerings were of the ears of new corn, they were parched at the fire, rubbed in the hand, and then offered to the priest in a vessel, over which he poured oil, incense, wine, and salt, and then burnt it upon the altar, having first taken as much of it as of right belonged to himself.

The principal sacrifices among the Hebrews consisted of bullocks, sheep, and goats; but doves and turtles were accepted from those who were not able to bring the other: these beasts were to be perfect, and without blemish. The rites of sacrificing were various; all of which are very minutely described in the books of Moses.

The manner of sacrificing among the Greeks and Romans was as follows. In the choice of the victim, they took care that it was without blemish or imperfection; its tail was not to be too small at the end; the tongue not black, nor the ears cleft; and that the bull was one that had never been yoked. The victim being pitched upon, they gilt his forehead and horns, especially if a bull, heifer, or cow. The head they also adorned with a garland of flowers, a woollen insula or holy fillet, whence hung two rows of chaplets with twisted ribands; and on the middle of the body a kind of stole, pretty large, hung down on each side; the lesser victims were only adorned with garlands and bundles of flowers, together with white tufts or wreaths.

The victims thus prepared were brought before the altar; the lesser being driven to the place, and the greater led by an halter; when, if they made any struggle, or refused to go, the resistance was taken for an ill omen, and the sacrifice frequently set aside. The victim thus brought was carefully examined, to see that there was no defect in it; then the priest, clad in his sacerdotal habit, and accompanied with the sacrificers and other attendants, and being washed and purified ac-

Sacrifice.

* Tit. Liv.
lib. 21.
cap. 45.

See Pro-
cy.

Sacrifice. cording to the ceremonies prescribed, turned to the right hand, and went round the altar, sprinkling it with meal and holy water, and also besprinkling those who were present. Then the crier proclaimed with a loud voice, Who is here? To which the people replied, Many and good. The priest then having exhorted the people to join with him by saying, Let us pray, confessed his own unworthiness, acknowledging that he had been guilty of divers sins; for which he begged pardon of the gods, hoping that they would be pleased to grant his requests, accept the oblations offered them, and send them all health and happiness; and to this general form added petitions for such particular favours as were then desired. Prayers being ended, the priest took a cup of wine; and having tasted it himself, caused his assistants to do the like; and then poured forth the remainder between the horns of the victim. Then the priest or the crier, or sometimes the most honourable person in the company, killed the beast, by knocking it down or cutting its throat. If the sacrifice was in honour of the celestial gods, the throat was turned up towards heaven, but if they sacrificed to the heroes or infernal gods, the victim was killed with its throat towards the ground. If by accident the beast escaped the stroke, leaped up after it, or expired with pain and difficulty, it was thought to be unacceptable to the gods. The beast being killed, the priest inspected its entrails, and made predictions from them. They then poured wine, together with frankincense, into the fire, to increase the flame, and then laid the sacrifice on the altar; which in the primitive times was burnt whole to the gods, and thence called an *holocaust*; but in after-times, only part of the victim was consumed in the fire, and the remainder reserved for the sacrificers; the thighs, and sometimes the entrails, being burnt to their honour, the company feasted upon the rest. During the sacrifice, the priest, and the person who gave the sacrifice, jointly prayed, laying their hand upon the altar. Sometimes they played upon musical instruments in the time of the sacrifice, and on some occasions they danced round the altar, singing sacred hymns in honour of the god.

Human SACRIFICES, an abominable practice, about the origin of which different opinions have been formed.—The true account seems to be that which we have given in the preceding article. When men had gone so far as to indulge the fancy of bribing their gods by sacrifice, it was natural for them to think of enhancing the value of so cheap an *atonement* by the cost and rarity of the offering; and, oppressed with their malady, they never rested till they had got to that which they conceived to be the most precious of all, a human sacrifice. “It was customary (says Sanchoniathon †), in ancient times, in great and public calamities, before things became incurable, for princes and magistrates to offer up in sacrifice to the avenging dæmons the dearest of their offspring,” Sanchoniathon wrote of Phœnicia, but the practice prevailed in every nation under heaven of which we have received any ancient account. The Egyptians had it in the early part of their monarchy. The Cretans likewise had it, and retained it for a longer time.—The nations of Arabia did the same. The people of Dumah, in particular, sacrificed every year a child, and buried it underneath an altar, which they made use of instead of an idol; for they did not admit of images,

† *Apud Euseb. Præp. Evang.*
lib. 4.

Sacrifice. The Persians buried people alive. Amestris, the wife of Xerxes, entombed 12 persons quick under ground for the good of her soul. It would be endless to enumerate every city, or every province, where these dire practices obtained. The Cyprians, the Rhodians, the Phœceans, the Ionians, those of Chios, Lesbos, Tenedos, all had human sacrifices. The natives of the Tauric Chersonesus offered up to Diana every stranger whom chance threw upon their coast. Hence arose that just expostulation in Euripides upon the inconsistency of the proceeding; wherein much good reasoning is implied. Iphigenia wonders, as the goddess delighted in the blood of men, that every villain and murderer should be privileged to escape, nay, be driven from the threshold of the temple; whereas, if an honest and virtuous man chanced to stray thither, he only was seized upon, and put to death. The Pelasgi, in a time of scarcity, vowed the tenth of all that should be born to them for a sacrifice, in order to procure plenty. Aristomenes the Messenian slew 300 noble Lacedæmonians, among whom was Theopompus the king of Sparta, at the altar of Jupiter at Ithome. Without doubt the Lacedæmonians did not fail to make ample returns; for they were a severe and revengeful people, and offered the like victims to Mars. Their festival of the Diamastigosis is well known; when the Spartan boys were whipped in the sight of their parents with such severity before the altar of Diana Orthia, that they often expired under the torture. Phylarchus affirms, as he is quoted by Porphyry, that of old every Grecian state made it a rule, before they marched towards an enemy, to solicit a blessing on their undertakings by human victims.

The Romans were accustomed to the like sacrifices. They both devoted themselves to the infernal gods, and constrained others to submit to the same horrid doom. Hence we read in Titus Livius, that, in the consulate of Æmilius Paulus and Terentius Varro, two Gauls, a man and a woman, and two in like manner of Greece, were buried alive at Rome in the Ox-market, where was a place under ground, walled round, to receive them; which had before been made use of for such cruel purposes. He says it was a sacrifice not properly Roman, that is, not originally of Roman institution; yet it was frequently practised there, and that too by public authority. Plutarch makes mention of a like instance a few years before, in the consulship of Flaminius and Furius. There is reason to think, that all the principal captives who graced the triumphs of the Romans, were at the close of that cruel pageantry put to death at the altar of Jupiter Capitolinus. Caius Marius offered up his own daughter for a victim to the Dii Avernici, to procure success in a battle against the Cimbri; as we are informed by Dorotheus, quoted by Clemens. It is likewise attested by Plutarch, who says that her name was *Calpurnia*. Marius was a man of a four and bloody disposition; and had probably heard of such sacrifices being offered in the enemy's camp, among whom they were very common, or he might have beheld them exhibited at a distance; and therefore murdered what was nearest, and should have been dearest to him, to counteract their fearful spells, and outdo them in their wicked machinery. Cicero, making mention of this custom being common in Gaul, adds, that it prevailed among that people even at the

time he was speaking: from whence we may be led to infer, that it was then discontinued among the Romans. And we are told by Pliny, that it had then, and not very long, been discouraged. For there was a law enacted, when Lentulus and Crassus were consuls, so late as the 657th year of Rome, that there should be no more human sacrifices: for till that time those horrid rites had been celebrated in broad day without any mask or controul; which, had we not the best evidence for the fact, would appear scarce credible. And however they may have been discontinued for a time, we find that they were again renewed; tho' they became not so public, nor so general. For not very long after this, it is reported of Augustus Cæsar, when Perusia surrendered in the time of the second triumvirate, that besides multitudes executed in a military manner, he offered up, upon the Ides of March, 300 chosen persons, both of the equestrian and senatorial order, at an altar dedicated to the manes of his uncle Julius. Even at Rome itself this custom was revived: and Porphyry assures us, that in his time a man was every year sacrificed at the shrine of Jupiter Latialis. Heliogabalus offered the like victims to the Syrian deity which he introduced among the Romans. The same is said of Aurelian.

The Gauls and the Germans were so devoted to this shocking custom, that no business of any moment was transacted among them without being prefaced with the blood of men. They were offered up to various gods; but particularly to Hesus, Taranis, and Thauates. These deities are mentioned by Lucan, where he enumerates the various nations who followed the fortunes of Cæsar.

The altars of these gods were far removed from the common resort of men; being generally situated in the depth of woods, that the gloom might add to the horror of the operation, and give a reverence to the place and proceeding. The persons devoted were led thither by the Druids, who presided at the solemnity, and performed the cruel offices of the sacrifice. Tacitus takes notice of the cruelty of the Hermunduri, in a war with the Catti, wherein they had greatly the advantage; at the close of which they made one general sacrifice of all that was taken in battle. The poor remains of the legions under Varus suffered in some degree the same fate. There were many places destined for this purpose all over Gaul and Germany; but especially in the mighty woods of Arduenna, and the great Hercynian forest; a wild that extended above 30 days journey in length. The places set apart for this solemnity were held in the utmost reverence, and only approached at particular seasons. Lucan mentions a grove of this sort near Massilia, which even the Roman soldiers were afraid to violate, though commanded by Cæsar. It was one of those set apart for the sacrifices of the country.

Claudian compliments Stilicho, that, among other advantages accruing to the Roman armies through his conduct, they could now venture into the awful forest of Hercynia, and follow the chace in those so much dreaded woods, and otherwise make use of them.

These practices prevailed among all the people of the north, of whatever denomination. The Massagetæ, the Scythians, the Getae, the Sarmatians, all the various nations upon the Baltic, particularly the

Suevi and Scandinavians, held it as a fixed principle, that their happiness and security could not be obtained but at the expence of the lives of others. Their chief gods were Thor and Woden, whom they thought they could never sufficiently glut with blood. They had many very celebrated places of worship; especially in the island Rugen, near the mouth of the Oder; and in Zealand: some, too, very famous among the Semnones and Naharvalli. But the most revered of all, and the most frequented, was at Upsal; where there was every year a grand celebrity, which continued for nine days. During this term they sacrificed animals of all sorts: but the most acceptable victims, and the most numerous, were men. Of these sacrifices none were esteemed so auspicious and salutary as a sacrifice of the prince of the country. When the lot fell for the king to die, it was received with universal acclamations and every expression of joy; as it once happened in the time of a famine, when they cast lots, and it fell to king Domalder to be the people's victim: and he was accordingly put to death. Olaus Tretelger, another prince, was burnt alive to Woden. They did not spare their own children. Harald the son of Gunild, the first of that name, slew two of his children to obtain a storm of wind. "He did not let (says Vêrtegan) to sacrifice two of his sons unto his idols, to the end he might obtain of them such a tempest at sea, as should break and disperse the shipping of Harald king of Denmark." Saxo Grammaticus mentions a like fact. He calls the king Haquin; and speaks of the persons put to death as two very hopeful young princes. Another king slew nine sons to prolong his own life; in hopes, perhaps, that what they were abridged of would in great measure be added to himself. Such instances, however, occur not often: but the common victims were without end. Adam Bremensis, speaking of the awful grove at Upsal, where these horrid rites were celebrated, says, that there was not a single tree but what was revered, as if it were gifted with some portion of divinity: and all this because they were stained with gore and foul with human putrefaction. The same is observed by Scheiffer in his account of this place.

The manner in which the victims were slaughtered, was diverse in different places. Some of the Gaulish nations chined them with a stroke of an ax. The Celtæ placed the man who was to be offered for a sacrifice upon a block, or an altar, with his breast upwards, and with a sword struck him forcibly across the sternum; then tumbling him to the ground, from his agonies and convulsions, as well as from the effusion of blood, they formed a judgment of future events. The Cimbri ripped open the bowels; and from them they pretended to divine. In Norway they beat mens brains out with an ox-yoke. The same operation was performed in Iceland, by dashing them against an altar of stone. In many places they transfixed them with arrows. After they were dead, they suspended them upon the trees, and left them to putrefy. One of the writers above quoted mentions, that in his time 70 carcasses of this sort were found in a wood of the Scevi. Dithmar of Merseburgh, an author of nearly the same age, speaks of a place called *Ledur* in Zealand, where there were every year 99 persons sacrificed to the god Swantowite. During these bloody festivals a general

Sacrifice. joy prevailed, and banquets were most royally served. They fed, caroused, and gave a loose to indulgence, which at other times was not permitted. They imagined that there was something mysterious in the number nine: for which reason these feasts were in some places celebrated every ninth year, in others every ninth month; and continued for nine days. When all was ended, they washed the image of the deity in a pool; and then dismissed the assembly. Their servants were numerous, who attended during the term of their feasting, and partook of the banquet. At the close of all, they were smothered in the same pool, or otherwise made away with. On which Tacitus remarks, how great an awe this circumstance must necessarily infuse into those who were not admitted to these mysteries.

These accounts are handed down from a variety of authors in different ages; many of whom were natives of the countries which they describe, and to which they seem strongly attached. They would not therefore have brought so foul an imputation on the part of the world in favour of which they were each writing, nor could there be that concurrence of testimony, were not the history in general true.

The like custom prevailed to a great degree at Mexico, and even under the mild government of the Peruvians; and in most parts of America. In Africa it is still kept up; where, in the inland parts, they sacrifice some of the captives taken in war to their fetiches, in order to secure their favour. Snelgrave was in the king of Dahome's camp, after his inroad into the countries of Ardra and Whidaw; and says, that he was a witness to the cruelty of this prince, whom he saw sacrifice multitudes to the deity of his nation.

The same abominable worship is likewise practised occasionally in the islands visited by Captain Cook, and other circumnavigators, in the South Sea. It seems indeed to have prevailed in every country at one period of the progress of civilization, and undoubtedly had the origin which we have assigned to it.

The sacrifices of which we have been treating, if we except some few instances, consisted of persons doomed by the chance of war, or assigned by lot, to be offered. But among the nations of Canaan, the victims were peculiarly chosen. Their own children, and whatever was nearest and dearest to them, were deemed the most worthy offering to their god. The Carthaginians, who were a colony from Tyre, carried with them the religion of their mother-country, and instituted the same worship in the parts where they settled. It consisted in the adoration of several deities, but particularly of Kronus; to whom they offered human sacrifices, and especially the blood of children. If the parents were not at hand to make an immediate offer, the magistrates did not fail to make choice of what was most fair and promising, that the god might not be defrauded of his dues. Upon a check being received in Sicily, and some other alarming circumstances happening, Hamilcar without any hesitation laid hold of a boy, and offered him on the spot to Kronus; and at the same time drowned a number of priests, to appease the deity of the sea. The Carthaginians another time, upon a great defeat of their army by Agathocles, imputed their miscarriages to the anger of this god, whose services had been neglected. Touched with this, and seeing the

Sacrifice. enemy at their gates, they seized at once 300 children of the prime nobility, and offered them in public for a sacrifice. Three hundred more, being persons who were somehow obnoxious, yielded themselves voluntarily, and were put to death with the others. The neglect of which they accused themselves, consisted in sacrificing children purchased of parents among the poorer sort, who reared them for that purpose, and not selecting the most promising, and the most honourable, as had been the custom of old. In short, there were particular children brought up for the altar, as sheep are fattened for the shambles; and they were bought and butchered in the same manner. But this indiscriminate way of proceeding was thought to have given offence. It is remarkable, that the Egyptians looked out for the most specious and handsome person to be sacrificed. The Albanians pitched upon the best man of the community, and made him pay for the wickedness of the rest. The Carthaginians chose what they thought the most excellent, and at the same time the most dear to them; which made the lot fall heavy upon their children. This is taken notice of by Silius Italicus in his fourth book.

Kronus, to whom these sacrifices were exhibited, was an oriental deity, the god of light and fire; and therefore always worshipped with some reference to that element. See PHOENICIA.

The Greeks, we find, called the deity to whom these offerings were made *Agraulos*; and feigned that she was a woman, and the daughter of Cecrops. But how came Cecrops to have any connection with Cyprus? *Agraulos* is a corruption and transposition of the original name, which should have been rendered *Uk El Aur*, or *Uk El Aurus*; but has, like many other oriental titles and names, been strangely sophisticated, and is here changed to *Agraulos*. It was in reality the god of light, who was always worshipped with fire. This deity was the Moloch of the Tyrians and Canaanites, and the Melech of the east; that is, the great and principal god, the god of light, of whom fire was esteemed a symbol; and at whose shrine, instead of viler victims, they offered the blood of men.

Such was the Kronus of the Greeks, and the Moloch of the Phœnicians: and nothing can appear more shocking than the sacrifices of the Tyrians and Carthaginians, which they performed to this idol. In all emergencies of state, and times of general calamity, they devoted what was most necessary and valuable to them for an offering to the gods; and particularly to Moloch. But besides these undetermined times of bloodshed, they had particular and prescribed seasons every year, when children were chosen out of the most noble and reputable families, as before mentioned. If a person had an only child, it was the more liable to be put to death, as being esteemed more acceptable to the deity, and more efficacious for the general good. Those who were sacrificed to Kronus were thrown into the arms of a molten idol, which stood in the midst of a large fire, and was red with heat. The arms of it were stretched out, with the hands turned upwards, as it were to receive them; yet sloping downwards, so that they dropt from thence into a glowing furnace below. To other gods they were otherwise slaughtered, and, as it is implied, by the very hands of their parents. What can be more

horrid

horrid to the imagination, than to suppose a father leading the dearest of all his sons to such an infernal shrine? or a mother the most engaging and affectionate of her daughters, just rising to maturity, to be slaughtered at the altar of Ashtaroth or Baal? Justin describes this unnatural custom very pathetically: *Quippe homines, ut victimas, immolabant: et impuberes (quæ ætas hostium misericordiam provocat) aris admovebant; pacem sanguine eorum exposcentes, pro quorum vultu Dii rogari maxime solent.* Such was their blind zeal, that this was continually practised; and so much of natural affection still left unextinguished, as to render the scene ten times more shocking from the tenderness which they seemed to express. They embraced their children with great fondness, and encouraged them in the gentlest terms, that they might not be appalled at the sight of the hellish process; begging of them to submit with cheerfulness to this fearful operation. If there was any appearance of a tear rising, or a cry unawares escaping, the mother smothered it with her kisses, that there might not be any show of backwardness or constraint, but the whole be a free-will offering. These cruel endearments over, they stabbed them to the heart, or otherwise opened the sluices of life; and with the blood warm, as it ran, besmeared the altar and the grim visage of the idol. These were the customs which the Israelites learned of the people of Canaan, and for which they are upbraided by the Psalmist: "They did not destroy the nations, concerning whom the Lord commanded them; but were mingled among the heathen, and learned their works: yea, they sacrificed their sons and their daughters unto devils, and shed innocent blood, even the blood of their sons and of their daughters, whom they sacrificed unto the idols of Canaan; and the land was polluted with blood. Thus were they defiled with their own works, and went a-whoring with their own inventions."

These cruel rites, practised in so many nations, made Plutarch debate with himself, "Whether it would not have been better for the Galatæ, or for the Scythians, to have had no tradition or conception of any superior beings, than to have formed to themselves notions of gods who delighted in the blood of men; of gods, who esteemed human victims the most acceptable and perfect sacrifice? Would it not (says he) have been more eligible for the Carthaginians to have had the atheist Critias, or Diagoras, their lawgiver, at the commencement of their polity, and to have been taught, that there was neither god nor demon, than to have sacrificed, in the manner they were wont, to the god which they adored? Wherein they acted, not as the person did whom Empedocles describes in some poetry, where he exposes this unnatural custom. The fire there with many idle vows offers up unwittingly his son for a sacrifice; but the youth was so changed in feature and figure, that his father did not know him. These people used, knowingly and wilfully, to go through this bloody work, and slaughter their own offspring. Even they who were childless would not be exempted from this cursed tribute; but purchased children, at a price, of the poorer sort, and put them to death with as little remorse as one would kill a lamb or a chicken. The mother, who sacrificed her child, stood by, without any seeming sense of what she was losing, and without uttering a groan. If a sigh did

by chance escape, she lost all the honour which she proposed to herself in the offering; and the child was notwithstanding slain. All the time of this ceremony, while the children were murdering, there was a noise of clarions and tabors sounding before the idol, that the cries and shrieks of the victims might not be heard. "Tell me now (says Plutarch) if the monsters of old, the Typhons, and the giants, were to expel the gods, and to rule the world in their stead; could they require a service more horrid than these infernal rites and sacrifices?"

SACRILEGE, SACRILEGIUM, the crime of profaning sacred things, or things devoted to God; or of alienating to laymen, or common purposes, what was given to religious persons and pious uses.

SACRISTAN, a church-officer, otherwise called **SEXTON**.

SACRISTY, in church-history, an apartment in a church where the sacred utensils were kept, being the same with our **VESTRY**.

SADDLE, is a seat upon a horse's back, contrived for the convenience of the rider.

A hunting-saddle is composed of two bows, two bands, fore-bolsters, pannels, and saddle-straps; and the great saddle has, besides these parts, corks, hind-bolsters, and a troufsequin.

The pommel is common to both.

SADDUCEES, were a famous sect among the ancient Jews, and consisted of persons of great quality and opulence. Respecting their origin there are various accounts and various opinions. Epiphanius, and after him many other writers, contend, that they took their rise from Dositheus a sectary of Samaria, and their name from the Hebrew word צדק *just* or *justice*, from the great justice and equity which they showed in all their actions; a derivation which neither suits the word *Sadducee* nor the general character of the sect. They are thought by some too to have been Samaritans; but this is by no means probable, as they always attended the worship and sacrifices at Jerusalem and never at Gerizzim.

In the Jewish Talmud we are told that the Sadducees derived their name from *Sadoc*, and that the sect arose about 260 years before Christ, in the time of Antigonius of Socho, president of the Sanhedrim at Jerusalem, and teacher of the law in the principal divinity school of that city. He had often in his lectures, it seems, taught his scholars, that they ought not to serve God as slaves do their masters, from the hopes of a reward, but merely out of filial love for his own sake; from which Sadoc and Daitus inferred that there were no rewards at all after this life. They therefore separated from their master, and taught that there was no resurrection nor future state. This new doctrine quickly spread, and gave rise to the sect of Sadducees, which in many respects resembled the **EPICUREANS**.

Dr Prideaux thinks, that the Sadducees were at first no more than what the Caraites are now; that is, they would not receive the traditions of the elders, but stuck to the written word only; and the Pharisees being great promoters of those traditions, hence these two sects became directly opposite to each other. See *Prideaux's Conn.* part. ii. b. 2 and 3. and see also **PHARISEES** and **CARAITES**.

Afterwards the Sadducees imbibed other doctrines, which

Sacrilege
||
Sadducees.

Sadducees, which rendered them a sect truly impious; for they denied the resurrection of the dead, and the existence of angels, and of the spirits or souls of men departed (Mat. xxii. 23. Acts xxiii. 8.) They held, that there is no spiritual being but God only; that as to man, this world is his all. They did not deny but that we had reasonable souls: but they maintained this soul was mortal; and, by a necessary consequence, they denied the rewards and punishments of another life. They pretended also, that what is said of the existence of angels, and of a future resurrection, are nothing but illusions. St Epiphanius, and after him St Austin, have advanced, that the Sadducees denied the Holy Ghost. But neither Josephus nor the evangelists accuse them of any error like this. It has been also imputed to them, that they thought God corporeal, and that they received none of the prophecies.

It is pretty difficult to apprehend how they could deny the being of angels, and yet receive the books of Moses, where such frequent mention is made of angels and of their appearances. Grotius and M. Le Clerc observe, that it is very likely they looked upon angels, not as particular beings, subsisting of themselves, but as powers, emanations, or qualities, inseparable from the Deity, as the sun-beams are inseparable from the sun. Or perhaps they held angels not to be spiritual but mortal; just as they thought that substance to be which animates us and thinks in us. The ancients do not tell us how they solved this difficulty, that might be urged against them from so many passages of the Pentateuch, where mention is made of angels.

As the Sadducees acknowledged neither punishments nor recompenses in another life, so they were inexorable in their chastising of the wicked. They observed the law themselves, and caused it to be observed by others, with the utmost rigour. They admitted of none of the traditions, explications, or modifications, of the Pharisees; they kept only to the text of the law; and maintained, that only what was written was to be observed.

The Sadducees are accused of rejecting all the books of Scripture except those of Moses; and to support this opinion, it is observed, that our Saviour makes use of no Scripture against them, but passages taken out of the Pentateuch. But Scaliger produces good proofs to vindicate them from this reproach. He observes, that they did not appear in Israel till after the number of the holy books were fixed; and that if they had been to choose out of the canonical Scriptures, the Pentateuch was less favourable to them than any other book, since it often makes mention of angels and their apparition. Besides, the Sadducees were present in the temple and at other religious assemblies, where the books of the prophets were read indifferently as well as those of Moses. They were in the chief employments of the nation, many of them were even priests. Would the Jews have suffered in these employments persons that rejected the greatest part of their Scriptures? Menasse ben-Israel says expressly, that indeed they did not reject the prophets, but that they explained them in a sense very different from that of the other Jews.

Josephus assures us, that they denied destiny or fate; alleging, that these were only sounds void of sense, and that all the good or evil that happens to us is in conse-

quence of the good or evil side we have taken, by the free choice of our will. They said also, that God was far removed from doing, or knowing evil, and that man was the absolute master of his own actions. This was roundly to deny a providence; and upon this footing I know not, says F. Calmet, what could be the religion of the Sadducees, or what influence they could ascribe to God in things here below. However, it is certain they were not only tolerated among the Jews, but that they were admitted to the high-priesthood itself. John Hircanus, high-priest of that nation, separated himself in a signal manner from the sect of the Pharisees, and went over to that of Sadoc. It is said also, he gave strict command to all the Jews, on pain of death, to receive the maxims of this sect. Aristobulus and Alexander Jannæus, son of Hircanus, continued to favour the Sadducees; and Maimonides assures us, that under the reign of Alexander Jannæus, they had in possession all the offices of the Sanhedrim, and that there only remained of the party of the Pharisees, Simon the son of Secra. Caiaphas, who condemned Jesus Christ to death, was a Sadducee (Acts, v. 17. iv. 1.); as also Ananus the younger, who put to death St James the brother of our Lord. At this day, the Jews hold as heretics that small number of Sadducees that are to be found among them. See upon this matter Serraz. *Tribares. Menasse ben-Israel, de Resurrectione mortuorum; Bishage's History of the Jews, &c.; and Calmet's Dissertation upon the Sects of the Jews before the Commentary of St Mark.*

The sect of the Sadducees was much reduced by the destruction of Jerusalem, and by the dispersion of the Jews; but it revived afterwards. At the beginning of the third century it was so formidable in Egypt, that Ammonim, Origen's master, when he saw them propagate their opinions in that country, thought himself obliged to write against them, or rather against the Jews, who tolerated the Sadducees, though they denied the fundamental points of their religion. The emperor Justinian mentions the Sadducees in one of his novels, banishes them out of all the places of his dominions, and condemns them to the severest punishments, as people that maintained atheistical and impious tenets; denying the resurrection and the last judgment. Annus, or Ananus, a disciple of Juda, son of Nachman, a famous rabbin of the 8th century, declared himself, as it is said, in favour of the Sadducees, and strenuously protected them against their adversaries. They had also a celebrated defender in the 12th century, in the person of Alpharag a Spanish rabbin. This doctor wrote against the Pharisees, the declared enemies of the Sadducees; and maintained by his public writings, that the purity of Judaism was only to be found among the Sadducees; that the traditions avowed by the Pharisees were useless; and that the ceremonies, which they had multiplied without end, were an insupportable yoke. The rabbi Abraham ben-David Italeri replied to Alpharag, and supported the sect of the Pharisees by two great arguments, that of their universality and that of their antiquity. He proved their antiquity by a continued succession from Adam down to the year 1167; and their universality, because the Pharisees are spread all the world over, and are found in all the synagogues. There are still Sadducees in Africa and in several other places. They deny the immortality of the soul, and the

S Adler
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the resurrection of the body ; but they are rarely found, at least there are but few who declare themselves for these opinions.

SADLER (John), was descended from an ancient family in Shropshire ; born in 1615 ; and educated at Cambridge, where he became eminent for his great knowledge in the oriental languages. He removed to Lincoln's-Inn, where he made no small progress in the study of the law ; and in 1644 was admitted one of the masters in chancery, as also one of the two masters of requests. In 1649 he was chosen town-clerk of London, and the same year published his *Rights of the Kingdom*. He was greatly esteemed by Oliver Cromwell, by whose special warrant he was continued a master in Chancery, when their number was reduced to six. By his interest it was that the Jews obtained the privilege of building for themselves a synagogue in London. In 1658 he was made member of parliament for Yarmouth ; and next year was appointed first commissioner under the great seal with Mr Taylor, Mr Whitelocke, and others, for the probate of wills. In 1660 he published his *Olbia*. Soon after the Restoration, he lost all his employments. In the fire of London in 1666, he was a great sufferer ; which obliged him to retire to his seat of Warmwell in Dorsetshire, where he lived in a private manner till 1674, when he died.

SADOC, a famous Jewish rabbi, and founder of the sect of the SADDUCEES.

SADOLET (James), a polite and learned cardinal of the Romish church, born at Modena in 1477. Leo X. made him and Peter Bembo his secretaries, an office for which they were both well qualified ; and Sadolet was soon after made bishop of Carpentras, near Avignon : he was made a cardinal in 1536 by Paul III. and employed in several negotiations and embassies. He died in 1547, not without the suspicion of poison, for corresponding too familiarly with the Protestants, and for testifying too much regard for some of their doctors. His works, which are all in Latin, were collected in 1607 at Mentz, in one volume 8vo. All his contemporaries spoke of him in the highest terms.

SAFE-GUARD, a protection formerly granted to a stranger who feared violence from some of the king's subjects for seeking his right by course of law.

SAFE-Conduct, is a security given by a prince under the great seal, to a stranger for his *safe-coming* into and passing out of the realm ; the form whereof is in *Reg. Orig.* 25. There are letters of safe conduct which must be enrolled in chancery ; and the persons to whom granted must have them ready to show ; and touching which there are several statutes. See PREROGATIVE.

See Cro.

SAFFRON, in the materia medica, is formed of the stigmata of the *crocus officinalis* *, dried on a kiln, and pressed together into cakes. Of this there are two kinds, the English and Spanish ; of which the latter is by far the most esteemed. Saffron is principally cultivated in Cambridgeshire, in a circle of about ten miles diameter. The greatest part of this tract is an open level country, with few inclosures ; and the custom there is, as in most other places, to crop two years, and let the land be fallow the third. Saffron is generally planted upon fallow-ground, and, all other things being alike, they prefer that which has borne barley the year before.

Saffron.

The saffron ground is seldom above three acres, or less than one ; and in choosing, the principal thing they have regard to is, that they be well exposed, the soil not poor, nor a very stiff clay, but a temperate dry mould, such as commonly lies upon chalk, and is of an hazel colour ; though, if every thing else answers, the colour of the mould is pretty much neglected.

The ground being made choice of, about Lady-day or the beginning of April, it must be carefully ploughed, the furrows being drawn much closer together, and deeper if the soil will allow it, than is done for any kind of corn ; and accordingly the charge is greater.

About five weeks after, during any time in the month of May, they lay between 20 and 30 loads of dung upon each acre, and having spread it with great care, they plough it in as before. The shortest rotten dung is the best ; and the farmers, who have the convenience of making it, spare no pains to make it good, being sure of a proportionable price for it. About midsummer they plough a third time, and between every 16 feet and an half they leave a broad furrow or trench, which serves both as a boundary to the several parcels, and for throwing the weeds into at the proper season. The time of planting is commonly in the month of July. The only instrument used at this time is a small narrow spade, commonly called a *spit-shovel*. The method is this : One man with his shovel raises about three or four inches of earth, and throws it before him about six or more inches. Two persons, generally women, follow with roots, which they place in the farthest edge of the trench made by the digger, at about three inches from each other. As soon as the digger has gone once the breadth of the ridge, he begins again at the other side ; and, digging as before, covers the roots last set, which makes room for another row of roots at the same distance from the first that they are from one another. The only dexterity necessary in digging is, to leave some part of the first stratum of earth untouched, to lie under the roots ; and, in setting, to place the roots directly upon their bottom. The quantity of roots planted on an acre is generally about 16 quarters, or 128 bushels. From the time of planting till the beginning of September, or sometimes later, there is no more labour required ; but at that time they begin to vegetate, and are ready to show themselves above ground, which may be known by digging up a few of the roots. The ground is then to be pared with a sharp hoe, and the weeds raked into the furrows, otherwise they would hinder the growth of the saffron. In some time after, the flowers appear.

They are gathered before they are full blown, as well as after, and the proper time for it is early in the morning. The owners of the saffron-fields get together a sufficient number of hands, who pull off the whole flowers, and throw them by handfuls into a basket, and so continue till about 11 o'clock. Having then carried home the flowers, they immediately fall to picking out the stigmata or chives, and together with them a pretty large proportion of the stylus itself, or string to which they are attached : the rest of the flower they throw away as useless. Next morning they return to the field, without regarding whether the weather be wet or dry ; and so on daily, even on Sundays, till the whole crop is gathered.—The next labour is to dry the chives on the kiln. The kiln is built upon a thick plank

plant

Saffron.

plank, that it may be moved from place to place. It is supported by four short legs: the outside consists of eight pieces of wood of three inches thick, in form of a quadrangular frame, about 12 inches square at the bottom on the inside, and 22 on the upper part; which last is likewise the perpendicular height of it. On the fore-side is left a hole of about eight inches square, and four inches above the plank, through which the fire is put in; over all the rest laths are laid pretty thick, close to one another, and nailed to the frame already mentioned. They are then plastered over on both sides, as are also the planks at bottom, very thick, to serve for an hearth. Over the mouth is laid a hair-cloth, fixed to the edges of the kiln, and likewise to two rollers or moveable pieces of wood, which are turned by wedges or screws, in order to stretch the cloth. Instead of the hair-cloth, some people use a net-work or iron-wire, by which the saffron is sooner dried, and with less fuel; but the difficulty of preserving it from burning makes the hair-cloth preferred by the best judges. The kiln is placed in a light part of the house; and they begin with putting five or six sheets of white paper on the hair-cloth, and upon these they lay out the wet saffron two or three inches thick. It is then covered with some other sheets of paper, and over these they lay a coarse blanket five or six times doubled, or instead of this, a canvas pillow filled with straw; and after the fire has been lighted for some time, the whole is covered with a board having a considerable weight upon it. At first they apply a pretty strong heat, to make the chives *sweat* as they call it; and at this time a great deal of care is necessary to prevent burning. When it has been thus dried about an hour, they turn the cakes of saffron upside down, putting on the coverings and weight as before. If no sinister accident happens during these first two hours, the danger is thought to be over; and nothing more is requisite than to keep up a very gentle fire for 24 hours, turning the cake every half hour. That fuel is best which yields the least smoke; and for this reason charcoal is preferable to all others.

The quantity of saffron produced at a crop is uncertain. Sometimes five or six pounds of wet chives are got from one rood, sometimes not above one or two; and sometimes not so much as is sufficient to defray the expence of gathering and drying. But it is always observed, that about five pounds of wet saffron go to make one pound of dry for the first three weeks of the crop, and six pounds during the last week. When the heads are planted very thick, two pounds of dry saffron may at a medium be allowed to an acre for the first crop, and 24 pounds for the two remaining ones, the third being considerably larger than the second.

To obtain the second and third crops, the labour of hoeing, gathering, picking, &c. already mentioned, must be repeated; and about midsummer, after the third crop is gathered, the roots must all be taken up and transplanted. For taking up the roots, sometimes the plough is made use of, and sometimes a forked hoe; and then the ground is harrowed once or twice over. During all the time of ploughing, harrowing, &c. 15 or more people will find work enough to follow and gather the heads as they are turned up. The roots are next to be carried to the house in sacks, where they are cleaned and rased. This labour consists in cleaning the roots

thoroughly from earth, decayed old pieces, involucra, or excrescences; after which they become fit to be planted in new ground immediately, or they may be kept for some time, without danger of spoiling. The quantity of roots taken up in proportion to those planted is uncertain; but, at a medium, 24 quarters of clean roots, fit to be planted, may be had from each acre.— There sometimes happens a remarkable change in the roots of saffron and some other plants. As soon as they begin to shoot upwards, there are commonly two or three large tap-roots sent forth from the side of the old one, which will run two or three inches deep into the ground. At the place where these bulbs first come out from, the old one will be formed sometimes, though not always, and the tap-root then decays. The bulb increases in bigness, and at last falls quite off; which commonly happens in April. But many times these tap-roots never produce any bulbs, and remain barren for ever after. All such roots therefore should be thrown away in the making a new plantation. This degeneracy of the roots is a disease for which no cure is as yet known.

When saffron is offered to sale, that kind ought to be chosen which has the broadest blades; this being the mark by which English saffron is distinguished from the foreign. It ought to be of an orange or fiery-red colour, and to yield a dark yellow tincture. It should be chosen fresh, not above a year old, in close cakes, neither dry nor yet very moist, tough and firm in tearing, of the same colour within as without, and of a strong, acrid, diffusive smell.

This drug has been reckoned a very elegant and useful aromatic. Besides the virtues it has in common with other substances of that class, it has been accounted one of the highest cordials, and is said to exhilarate the spirits to such a degree as, when taken in large doses, to occasion immoderate mirth, involuntary laughter, and the ill effects which follow from the abuse of spirituous liquors. This medicine is particularly serviceable in hysteric depressions proceeding from a cold cause or obstruction of the uterine secretions, where other aromatics, even those of the more generous kind, have little effect. Saffron imparts the whole of its virtue and colour to rectified spirit, proof-spirit, wine, vinegar, and water. A tincture drawn with vinegar loses greatly of its colour in keeping: the watery and vinous tinctures are apt to grow sour, and then lose their colour also: that made in pure spirit keeps in perfection for many years.

Meadow-Saffron. See COLCHICUM.

SAGAN, in scripture-history, the suffragan or deputy of the Jewish high-priest. According to some writers, he was only to officiate for him when he was rendered incapable of attending the service through sickness or legal uncleanness on the day of expiation; or, according to others, he was to assist the high-priest in the care of the affairs of the temple and the service of the priests.

SAGAPENUM, in pharmacy, &c. a gum-resin brought to us in two forms; the finer and purer is in loose granules or single drops; the coarser kind is in masses composed of these drops of various sizes, cemented together by a matter of the same kind. In either case, it is of a firm and compact substance, considerably heavy, and of a reddish colour on the outside, brownish within,

Saffron
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Sagapenum.

within, and spotted in many places with small yellowish or whitish specks. Its smell is strong and disagreeable; its taste acrid and unpleasant.

It is brought to us from Persia and the East Indies. The plant which produces it has never been described; but is supposed to be, as Dioscorides says, of the ferula kind, from the seeds and fragments of the stalks sometimes met with in the body of it.

Sagapenum is a very great attenuant, aperient, and discutient. It is good in all disorders of the breast that owe their origin to a tough phlegm. It has also been found to discuss tumors in the nervous parts in a remarkable manner; and to give relief in habitual headaches, where almost all things else have failed. Its dose is from ten grains to two scruples; but it is now seldom given alone. It has been found, however, to do great things in asthmas; in obstructions of the viscera, particularly the spleen; in nervous complaints; and even in epilepsies. It also promotes the menses, and expels the secundines; and is an ingredient in the theriaca, mithridate, and many other of the shop compositions.

SAGE, in botany. See SALVIA.

SAGE (Alain Rene), an ingenious French romance-writer, was born at Ruys in Brittany in the year 1667. He had a fine flow of imagination, was a complete master of the French and Spanish languages, and wrote several admired romances in imitation of the Spanish authors. These were, *The Bachelor of Salamanca*, 2 vols 12mo; *New Adventures of Don Quixote*, 2 vols 12mo; *The Devil on Two Sticks*, 2 vols 12mo; and *Gil Blas*, 4 vols 12mo. He produced also some comedies, and other pieces of pleasantries; and died in 1747, in a little house near Paris, where he supported himself by writing.

SAGE (the reverend John), so justly admired by all who knew him for his classical learning and reasoning powers, was born, in 1652, in the parish of Creich and county of Fife, North Britain, where his ancestors had lived for seven generations with great respect though with little property. His father was a captain in Lord Duffus's regiment, and fought for his king and country when Monk stormed Dundee on the 30th of August 1651.

The issue of the civil wars, and the loyalty of captain Sage, left him nothing to bestow upon his son but a liberal education and his own principles of piety and virtue. In those days the Latin language was taught in the parochial schools of Scotland with great ability and at a trifling expence; and after young Sage had acquired a competent knowledge of that language at one of those useful seminaries, his father, without receiving from an ungrateful court any recompense for what he had lost in the cause of royalty, was still able to send him to the university of St Andrew's, where having remained in college the usual number of terms or sessions, and performed the exercises required by the statutes, he was admitted to the degree of master of arts, the highest honour which it appears he ever received from any university.

During his residence in St Andrew's he studied the Greek and Roman authors with great diligence, and was likewise instructed in logic, metaphysics, and such other branches of philosophy as then obtained in the schools, which, though we affect to smile at them in this enlightened age, he always spoke of as highly useful to him who would understand the poets, historians,

and orators of ancient Greece, and even the fathers of the Christian church. In this opinion every man will agree with him who is at all acquainted with the ancient metaphysics, and has read the writings of Clements Alexandrinus, Origen, Tertullian, Chrysostome, and other fathers of great name; for each of those writers adopted the principles of some one or other of the philosophical sects, reasoned from their notions, and often made use of their terms and phrases.

When Mr Sage had taken his master's degree, the narrowness of his fortune compelled him to accept of the first literary employment which was offered to him; and that happened to be nothing better than the office of schoolmaster in the parish of Bingry in Fifeshire, whence he was soon removed to Tippermuir in the county of Perth. In these humble stations, though he wanted many of the necessaries and almost all the comforts of life, he prosecuted his studies with great success; but in doing so, he unhappily imbibed the seeds of several diseases which afflicted him through life, and notwithstanding the native vigour of his constitution impaired his health and shortened his days. From the miserable drudgery of a parish-schoolmaster, he was relieved by Mr Drummond of Culmalundie, who invited him to superintend the education of his sons, whom he accompanied first to the public school at Perth, and afterwards to the university of St Andrew's. This was still an employment by no means adequate to his merit, but it was not wholly without advantages. At Perth he gained the friendship and esteem of Dr Rose, afterwards lord bishop of Edinburgh, and at St Andrew's of every man capable of properly estimating genius and learning.

The education of his pupils was completed in 1684, when he was left with no determinate object of pursuit. In this moment of indecision, his friend Dr Rose, who had been promoted from the parsonage of Perth to the professorship of divinity in the university which he was leaving, recommended him so effectually to his uncle then archbishop of Glasgow, that he was by that prelate admitted into orders and presented to one of the churches in the city. He was then about 34 years of age, had studied the Scriptures with great assiduity, was no stranger to ecclesiastical history, or the apologies and other writings of the ancient fathers, was thorough master of school-divinity, had examined with great accuracy the modern controversies, especially those between the Romish and reformed churches, and between the Calvinists and Remonstrants; and it was perhaps to his honour that he did not fully approve of all the articles of faith subscribed by any one of these contending sects of Christians.

A man so far advanced in life, and so thoroughly accomplished as a scholar, would naturally be looked up to by the greater part of the clergy as soon as he became one of their body. This was in fact the case: Mr Sage was, immediately on his admission into orders, appointed clerk to the synod or presbytery of Glasgow; an office of great trust and respectability, to which we know nothing similar in the church of England.

During the establishment of episcopacy in Scotland, from the restoration of Charles II. till the year 1690, the authority of the bishops, though they possessed the

Sage. sole power of ordination, was very limited in the government of the church. They did every thing with the consent of the presbyters over whom they presided. Diocesan synods were held at stated times for purposes of the same kind with those which employ the meetings of presbyteries at present (see PRESBYTERIANS), and the only prerogative which the bishop seems to have enjoyed was to be permanent president, with a negative voice over the deliberations of the assembly. The acts of each synod, and sometimes the charge delivered by the bishop at the opening of it, were registered in a book kept by the clerk, who was always one of the most eminent of the diocesan clergy.

Mr Sage continued in this office, discharging in Glasgow all the duties of a clergyman, in such a manner as endeared him to his flock, and gained him the esteem even of those who were dissenters from the establishment. Many of his brethren were trimmers in ecclesiastical as well as in civil politics. They had been republicans and presbyterians in the days of the covenant; and, with that ferocious zeal which too often characterizes interested converts, had concurred in the severities which, during the reign of Charles II. were exercised against the party whom they had forsaken at his restoration. When that party again raised its head during the infatuated reign of James, and every thing indicated an approaching change of the establishment, those whose zeal for the church had so lately incited them to persecute the dissenters suddenly became all gentleness and condescension, and advanced towards the presbyterians as to their old friends.

The conduct of Mr Sage was the reverse of this. He was an episcopalian and a royalist from conviction: and in all his discourses public and private he laboured to instil into the minds of others the principles which to himself appeared to have their foundation in truth. To persecution he was at all times an enemy, whilst he never tamely betrayed through fear what he thought it his duty to maintain. The consequence was, that in the end of the year 1688 he was treated by the rabble, which in the western counties of Scotland rose against the established church, with greater lenity than his more complying brethren. Whilst they, without the smallest apprehension of their danger, were torn from their families by a lawless force, and many of them persecuted in the cruellest manner, he was privately warned to withdraw from Glasgow, and never more to return to that city. So much was consistency of conduct and a steady adherence to principle respected by those who seemed to respect nothing else.

Mr Sage retired to the metropolis, and carried with him the synodical book, which was afterwards demanded by the presbytery of Glasgow, but not recovered till about three or four years ago, that, on the death of a nephew of Dr Rose the last established bishop of Edinburgh, it was found in his possession, and restored to the presbytery to which it belonged. Mr Sage had detained it and given it to his diocesan and friend, from the fond hope that episcopacy would soon be re-established in Scotland; and it was doubtless with a view to contribute what he could to the realising of that hope, that, immediately on his being obliged to leave Glasgow, he commenced a keen polemical writer. At Edinburgh he preached a while, till refusing to take the oaths of allegiance when required by the govern-

Sage. ment, he was obliged to retire. In this extremity, he found protection in the house of Sir William Bruce, the sheriff of Kinross, who approved his principles and admired his virtue. Returning to Edinburgh, in 1695, he was observed, and obliged to abscond. Yet he returned in 1696, when his friend Sir William Bruce was imprisoned as a suspected person. He was soon forced to look for refuge in the hills of Angus, under the name of Jackson.

After a while Mr Sage found a safe retreat with the countess of Callendar, who employed him to instruct her family as chaplain, and her sons as tutor. These occupations did not wholly engage his active mind: for he employed his pen in defending his order, or in exposing his oppressors. When the countess of Callendar had no longer sons to instruct, Sage accepted the invitation of Sir John Steuart of Garntully, who wanted the help of a chaplain, and the conversation of a scholar. With Sir John he continued till the decency of his manners, and the extensiveness of his learning, recommended him to a higher station. And, on the 25th of January 1705, he was consecrated a bishop by Paterfon the archbishop of Glasgow, Rose the bishop of Edinburgh, and Douglas the bishop of Dumblain. But this promotion did not prevent sickness from falling on him in November 1706. After lingering for many months in Scotland, he tried the effect of the waters of Bath in 1709, without success. At Bath and at London he remained a twelvemonth, recognised by the great and caressed by the learned. Yet though he was invited to stay, he returned in 1710 to his native country, which he desired to see, and where he wished to die. And though his body was debilitated, he engaged, with undiminished vigour of mind, in the publication of the works of Drummond of Hawthornden, to which the celebrated Ruddiman lent his aid. Bishop Sage died at Edinburgh on the 7th of June 1711, lamented by his friends for his virtues, and feared by his adversaries for his talents.

His works are, 1st, Two Letters concerning the Persecution of the Episcopal Clergy in Scotland, which with other two by different authors were printed in one volume at London in 1689. 2dly, An Account of the late Establishment of Presbyterian Government by the Parliament of Scotland, in 1690, London, 1693. 3dly, The Fundamental Charter of Presbytery, London, 1695. 4thly, The Principles of the Cyprianick Age with regard to Episcopal Power and Jurisdiction, London, 1695. 5thly, A Vindication of the Principles of the Cyprianick Age, London, 1701. 6thly, Some Remarks on the Letter from a Gentleman in the City, to a minister in the Country, on Mr David Williamson's Sermon before the General Assembly, Edinburgh, 1703. 7thly, A Brief Examination of some Things in Mr Meldrum's Sermon, preached on the 16th of May 1703, against a Toleration to those of the Episcopal Persuasion, Edinburgh, 1703. 8thly, The Reasonableness of a Toleration of those of the Episcopal Persuasion inquired into purely on Church Principles, Edinburgh, 1704. 9thly, The Life of Gawin Douglas, in 1710. 10thly, An introduction to Drummond's History of the Five James's, Edinburgh, 1711. Of the principles maintained in these publications, different readers will think very differently; and it is probable that the acrimony displayed in some of them will be

be generally condemned in the present day; whilst the learning and acuteness of their author will be universally acknowledged and admired by all who can distinguish merit in a friend or an adversary.

SAGENE, a Russian long measure, 500 of which make a verst: the sagene is equal to seven English feet.

SAGINA, in botany: A genus of the tetragynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 22d order, *Caryophyllei*. The calyx is tetraphyllous; the petals four; the capsule is unilocular, quadrivalved, and polyspermous.

SAGITTARIA, **ARROW-HEAD**: A genus of the polyandria order, belonging to the monocleia class of plants; and in the natural method ranking under the fifth order, *Tripelatoideae*. The male calyx is triphyllous; the corolla tripetalous; the filaments generally about 14; the female calyx is triphyllous; the corolla tripetalous; many pistils; and many naked seeds. There are four species, of which the most remarkable is the sagittifolia, growing naturally in many parts of England. The root is composed of many strong fibres, which strike into the mud; the footstalks of the leaves are in length proportionable to the depth of the water in which they grow; so they are sometimes almost a yard long: they are thick and fungous; the leaves, which float upon the water, are shaped like the point of an arrow, the two ears at their base spreading wide asunder, and are very sharp-pointed. The flowers are produced upon long stalks which rise above the leaves, standing in whorls round them at the joints. They consist of three broad white petals, with a cluster of stamens in the middle, which have purple summits. There is always a bulb at the lower part of the root, growing in the solid earth beneath the mud. This bulb constitutes a considerable part of the food of the Chinese; and upon that account they cultivate it. Horses, goats, and swine, eat it; cows are not fond of it.

SAGITTARIUS, in astronomy, the name of one of the 12 signs of the zodiac.

SAGO, a simple brought from the East Indies, of considerable use in diet as a restorative. It is produced from a species of palm-tree (*Cycas circinalis*, L.) growing spontaneously in the East Indies without any culture. The progress of its vegetation in the early stages is very slow. At first it is a mere shrub, thick set with thorns, which makes it difficult to come near it; but as soon as its stem is once formed, it rises in a short time to the height of 30 feet, is about six feet in circumference, and imperceptibly loses its thorns. Its ligneous bark is about an inch in thickness, and covers a multitude of long fibres; which, being interwoven one with another, envelope a mass of a gummy kind of meal. As soon as this tree is ripe, a whitish dust, which transpires through the pores of the leaves, and adheres to their extremities, proclaims its maturity. The Malays then cut them down near the root, divide them into several sections, which they split into quarters: they then scoop out the mass of mealy substance, which is enveloped by and adheres to the fibres; they dilute it in pure water, and then pass it through a straining bag of fine cloth, in order to separate it from the fibres. When this paste has lost part of its moisture by evaporation, the Malays throw it into a kind of earthen vessels, of different shapes, where they allow it to dry and hard-

en. This paste is wholesome nourishing food, and preserves for many years. The Indians eat it diluted with water, and sometimes baked or boiled. Through a principle of humanity, they reserve the finest part of this meal for the aged and infirm. A jelly is sometimes made of it, which is white and of a delicious flavour.

SAGUM, in Roman antiquity, a military habit, open from top to bottom, and usually fastened on the right shoulder with a buckle or clasp. It was not different in shape from the *chlamys* of the Greeks and the *paludamentum* of the generals. The only difference between them was, that the paludamentum was made of a richer stuff, was generally of a purple colour, and both longer and fuller than the sagum.

SAGUNTUM, an ancient town of Spain, now called *Morvedro*, where there are still the ruins of a Roman amphitheatre to be seen. The new town is seated on a river called *Morvedro*, 15 miles to the north of Valencia, in E. Long. 0. 10. N. Lat. 39. 38. It was taken by Lord Peterborough in 1706.

SAICK, or **SAIQUE**, a Turkish vessel, very common in the Levant for carrying merchandize.

SAIDE, the modern name of Sidon. See **SIDON**.

SAIL, in navigation, an assemblage of several breadths of canvas sewed together by the lifts, and edged round with cord, fastened to the yards of a ship, to make it drive before the wind. See **SHIP**.

The edges of the cloths, or pieces, of which a sail is composed, are generally sewed together with a double seam; and the whole is skirted round at the edges with a cord, called the *bolt-rope*.

Although the form of sails is extremely different, they are all nevertheless triangular or quadrilateral figures; or, in other words, their surfaces are contained either between three or four sides.

The former of these are sometimes spread by a yard, as lateen-sails; and otherwise by a stay, as stay-sails; or by a mast, as shoulder-of-mutton sails; in all which cases the foremost leech or edge is attached to the said yard, mast, or stay, throughout its whole length. The latter, or those which are four-sided, are either extended by yards, as the principal sails of a ship; or by yards and booms, as the studding-sails, drivers, ring-tails, and all those sails which are set occasionally; or by gaffs and booms, as the main-sails of sloops and brigantines.

The principal sails of a ship (Plate CCCCXLIV. fig. 2.) are the courses or lower sails *a*; the top-sails *b*, which are next in order above the courses; and the top-gallant sails *c*, which are expanded above the top-sails.

The courses are the main-sail, fore-sail, and mizen, main stay-sail, fore stay-sail, and mizen stay-sail: but more particularly the three first. The main-stay sail is rarely used except in small vessels.

In all quadrangular sails the upper edge is called the *head*; the sides or skirts are called *leeches*; and the bottom or lower edge is termed the *foot*. If the head is parallel to the foot, the two lower corners are denominated *clues*, and the upper corners earings.

In all triangular sails, and in those four-sided sails wherein the head is not parallel to the foot, the foremost corner at the foot is called the *tack*, and the after lower-corner the *clue*; the foremost perpendicular or sloping edge is called the *fore-leech*, and the hindmost the *after-leech*.

Sail.

The heads of all four-sided sails, and the fore-leeches of lateen-sails, are attached to their respective yard or gaff by a number of small cords called *ro-bands*; and the extremities are tied to the yard-arms, or to the peak of the gaff, by earings.

The stay-fails are extended upon stays between the masts, whereon they are drawn up or down occasionally, as a curtain slides upon its rod, and their lower parts are stretched out by a tack and sheet. The clues of a top-fail are drawn out to the extremities of the lower yard, by two large ropes called the *top-fail sheets*; and the clues of the top-gallant sails are in like manner extended upon the top-fail yard-arms, as exhibited by fig. 2.

The studding-fails are set beyond the leeches or skirts of the main-fail and fore-fail, or of the top-fails or top-gallant sails of a ship. Their upper and lower edges are accordingly extended by poles run out beyond the extremities of the yards for this purpose. Those sails, however, are only set in favourable winds and moderate weather.

All sails derive their name from the mast, yard, or stay, upon which they are extended. Thus the principal fail extended upon the main-mast is called the *main-fail*, *d*; the next above, which stands upon the main-top mast, is termed the *main-top fail*, *e*; and the highest, which is spread across the main-top-gallant mast, is named the *main-top-gallant fail*, *f*.

In the same manner there is the fore-fail, *g*; the fore top-fail, *h*; and the fore-top-gallant-fail, *i*; the mizen, *k*; the mizen top-fail, *l*; and mizen top-gallant-fail, *m*. Thus also there is the main-stay-fail, *o*; main-top-mast stay-fail, *p*; and main-top-gallant stay-fail, *q*; with a middle stay-fail which stands between the two last.

N. B. All these stay-fails are between the main and fore-masts.

The stay-fails between the main-mast and mizen-mast are the mizen stay-fail, *r*; and the mizen top-mast stay-fail, *s*; and sometimes a mizen top-gallant stay-fail above the latter.

The stay-fails between the foremast and the bowsprit are the fore stay-fail, *t*; the fore top-mast stay-fail *u*; and the jib, *x*. There is besides two square sails extended by yards under the bow-sprit, one of which is called the *sprit-fail*, *y*; and the other the *sprit-fail top-fail*, *z*.

The studding-fails being extended upon the different yards of the main-mast and fore-mast, are likewise named according to their stations, the *lower*, *top-mast*, or *top-gallant studding sails*.

The ropes by which the lower yards of a ship are hoisted up to their proper height on the masts, are called the *jeers*. In all other sails the ropes employed for this purpose are called *haliards*.

The principal fails are then expanded by haliards, sheets, and bowlines; except the courses, which are always stretched out below by a tack and sheet. They are drawn up together, or trussed up, by bunt-lines, clue-lines, *dd*; leech-lines, *ee*; reef-tackles, *ff*; slab-line, *g*; and spiling-lines. As the bunt-lines and leech-lines pass on the other side of the fail, they are expressed by the dotted lines in the figure.

The courses, top-fails, and top-gallant sails, are wheeled about the mast, so as to suit the various direc-

tions of the wind by braces. The higher studding fails, and in general all the stay-fails, are drawn down, so as to be furled, or taken in, by down-hauls.

Some experienced fail-makers contend, that it would be of much advantage if many of the fails of ships were made of equal magnitude; in which case, when necessity required it, they could be interchangeably used. For example, as the mizen top-fail is now made nearly as large as the main top-gallant fail, it would be easy to make the yards, masts, and fails, so as mutually to suit each other. The main and fore-top fails differ about two feet at head and foot, and from one to three feet in depth. These likewise could be easily made alike, and in some cases they are so. The same may be said of the main and fore top-gallant fails, and of the mizen top-gallant fail, and main fore-royal. The main-fail and fore-fail might also, with respect to their head, be made alike; but as the former has a gore at the leech, and a larger gore at the foot for clearing it of the galls, boats, &c. which the latter has not, there might be more difficulty in arranging them. The difficulty, however, appears not to be insurmountable. These alterations, it is thought, would be extremely useful in the event of losing sails by stress of weather. Fewer sails would be thus necessary, less room would be required to stow them, and there would be less danger of confusion in taking them out. But perhaps the utility of these alterations will be more felt in the merchant-service than in the navy, which latter has always a large store of spare sails, and sufficient room to stow them in order. Thus, too, spare yards and masts might be considerably reduced in number, and yet any casual damages more easily repaired at sea. Top-mast studding sails are occasionally substituted for awnings, and might, by a very little attention in planning the rigging of a ship, be so contrived as to answer both purposes. See SHIP-BUILDING.

SAIL is also a name applied to any vessel beheld at a distance under sail.

To set SAIL, is to unfurl and expand the sails upon their respective yards and stays, in order to begin the action of sailing.

To Make SAIL, is to spread an additional quantity of sail, so as to increase the ship's velocity.

To shorten SAIL, is to reduce or take in part of the sails, with an intention to diminish the ship's velocity.

To Strike SAIL, is to lower it suddenly. This is particularly used in saluting or doing homage to a superior force, or to one whom the law of nations acknowledges as superior in certain regions. Thus all foreign vessels strike to a British man of war in the British seas.

SAILING, the movement by which a vessel is wafted along the surface of the water, by the action of the wind upon her sails.

When a ship changes her state of rest into that of motion, as in advancing out of a harbour, or from her station at anchor, she acquires her motion very gradually, as a body which arrives not at a certain velocity till after an infinite repetition of the action of its weight.

The first impression of the wind greatly affects the velocity, because the resistance of the water might destroy it; since the velocity being but small at first, the

re-

Sail.

resistance of the water which depends on it will be very feeble: but as the ship increaseth her motion, the force of the wind on the sails will be diminished; whereas, on the contrary, the resistance of the water on the bow will accumulate in proportion to the velocity with which the vessel advances. Thus the repetition of the degrees of force, which the action of the sails adds to the motion of the ship, is perpetually decreasing; whilst, on the contrary, the new degrees added to the effort of resistance on the bow are always augmenting. The velocity is then accelerated in proportion as the quantity added is greater than that which is subtracted; but when the two powers become equal; when the impression of the wind on the sails has lost so much of its force, as only to act in proportion to the opposite impulse of resistance on the bow, the ship will then acquire no additional velocity, but continue to sail with a constant uniform motion. The great weight of the ship may indeed prevent her from acquiring her greatest velocity; but when she has attained it, she will advance by her own intrinsic motion, without gaining any new degree of velocity, or lessening what she has acquired. She moves then by her own proper force *in vacuo*, without being afterwards subject either to the effort of the wind on the sails, or to the resistance of the water on the bow. If at any time the impulsion of the water on the bow should destroy any part of the velocity, the effort of the wind on the sails will revive it, so that the motion will continue the same. It must, however, be observed, that this state will only subsist when these two powers act upon each other in direct opposition; otherwise they will mutually destroy one another. The whole theory of working ships depends on this counter-action, and the perfect equality which should subsist between the effort of the wind and the impulsion of the water.

The effect of sailing is produced by a judicious arrangement of the sails to the direction of the wind. Accordingly the various modes of sailing are derived from the different degrees and situations of the wind with regard to the course of the vessel. See SEAMANSHIP.

To illustrate this observation by examples, the plan of a number of ships proceeding on various courses are represented by fig. 3. which exhibits the 32 points of the compass, of which C is the centre; the direction of the wind, which is northerly, being expressed by the arrow.

It has been observed in the article *Close-Hauled*, that a ship in that situation will sail nearly within six points of the wind. Thus the ships B and y are close-hauled; the former being on the larboard-tack, steering E. N. E. and the latter on the starboard tack, sailing W. N. W. with their yards *a b* braced obliquely, as suitable to that manner of sailing. The line of battle on the larboard tack would accordingly be expressed by CB, and on the starboard by Cy.

When a ship is neither close-hauled, nor steering afore the wind, she is in general said to be sailing large. The relation of the wind to her course is precisely determined by the number of points between the latter and the course close-hauled. Thus the ships *c* and *x* have the wind one point large, the former steering E. *b* N. and the latter W. *b* N. The yards remain al-

most in the same position as in B and y; the bowlines and sheets of the sails being only a little slackened.

The ships *d* and *u* have the wind two points large, the one steering east and the other west. In this manner of sailing, however, the wind is more particularly said to be upon the beam, as being at right angles with the keel, and coinciding with the position of the ship's beams. The yards are now more across the ship, the bowlines are cast off, and the sheets more relaxed; so that the effort of the wind being applied nearer to the line of the ship's course, her velocity is greatly augmented.

In *e* and *t* the ships have the wind three points large, or one point abaft the beam, the course of the former being E. *b* S. and that of the latter W. *b* S. The sheets are still more flowing, the angle which the yards make with the keel further diminished, and the course accelerated in proportion.

The ships *f* and *j*, the first of which steers E. S. E. and the second W. S. W. have the wind four points large, or two points abaft the beam. In *g* and *r* the wind is five points large, or three points abaft the beam, the former sailing S. E. *b* E. and the latter S. W. *b* W. In both these situations the sheets are still farther slackened, and the yards laid yet more athwart the ship's length, in proportion as the wind approaches the quarter.

The ships *b* and *q*, steering S. E. and S. W. have the wind six points large, or more properly on the quarter; which is considered as the most favourable manner of sailing, because all the sails co-operate to increase the ship's velocity; whereas, when the wind is right aft, as in the ship *m*, it is evident that the wind in its passage to the foremast sails will be intercepted by those which are farther aft. When the wind is on the quarter, the fore-tack is brought to the cat-head; and the main-tack being cast off, the weather-clue of the main-sail is hoisted up to the yard, in order to let the wind pass freely to the fore-sail; and the yards are disposed so as to make an angle of about two points, or nearly 22° , with the keel.

The ships *i* and *p*, of which the former sails S. E. *b* S. and the latter S. W. *b* S. are said to have the wind three points on the larboard or starboard quarter: and those expressed by *k* and *o*, two points; as steering S. S. E. and S. S. W. in both which positions the yards make nearly an angle of 16° , or about a point and an half, with the ship's length.

When the wind is one point on the quarter, as in the ships *l* and *n*, whose courses are S. *b* E. and S. *b* W. the situation of the yards and sails is very little different from the last mentioned; the angle which they make with the keel being somewhat less than a point, and the stay-sails being rendered of very little service. The ship *m* sails right afore the wind, or with the wind right aft. In this position the yards are laid at right angles with the ship's length: the stay-sails being entirely useless, are hauled down; and the main-sail is drawn up in the brails, that the fore-sail may operate; a measure which considerably facilitates the steering, or effort of the helm. As the wind is then intercepted by the main-top-sail and main-top-gallant-sail, in its passage to the fore-top-sail and fore-top-gallant-sail, these latter are by consequence entirely becalmed; and might

Sail.

Sailing
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Saint.

might therefore be furled, to prevent their being fretted by flapping against the mast, but that their effort contributes greatly to prevent the ship from broaching-to, when she deviates from her course to the right or left thereof.

Thus all the different methods of sailing may be divided into four, viz. close-hauled, large, quartering, and afore the wind; all which relate to the direction of the wind with regard to the ship's course, and the arrangement of the sails.

SAILING also implies a particular mode of navigation, formed on the principles, and regulated by the laws, of trigonometry. Hence we say, Plain Sailing, Mercator's, Middle-latitude, Parallel, and Great-circle Sailing. See the article NAVIGATION.

SAIL-MAKING, the art of making sails. See SAIL and SHIP-BUILDING.

SAILOR, the same with MARINER and SEAMAN.

SAINT, means a person eminent for piety and virtue, and is generally applied by us to the apostles and other holy persons mentioned in Scripture. But the Romanists make its application much more extensive. Under the word CANONIZATION we have already said something on their practice of creating saints. Our readers, however, will not, we trust, be displeased with the following more enlarged account, which they themselves give of the matter. The canonization of saints, then, they tell us, is the enrolment of any person in the *canon* or catalogue of those who are called *saints*; or, it is a judgment and sentence of the church, by which it is declared, that a deceased person was eminent for sanctity during his lifetime, and especially towards the end of it; and that consequently he must now be in glory with God, and deserves to be honoured by the church on earth with that veneration which she is wont to pay to the blessed in heaven.

The discipline with regard to this matter has varied. It would seem that in the first ages every bishop in his own diocese was wont to declare what persons were to be honoured as saints by his people. Hence St Cyprian, about the middle of the third century, B. 3. ep. 6. requires that he be informed of those who should die in prison for the faith, that so he might make mention of them in the holy sacrifice with the martyrs, and might honour them afterwards on the anniversary day of their happy death. This veneration continued sometimes to be confined to one country; but sometimes it extended to distant provinces, and even became universal all over the church. It was thus that St Laurence, St Ambrose, St Augustine, St Basil, and many others, appear to have been canonized by custom and universal persuasion. In those ages none were reckoned saints but the apostles, the martyrs, and very eminent confessors, whose sanctity was notorious everywhere.

Afterwards it appears that canonizations were wont to be performed in provincial synods under the direction of the metropolitan. It was thus that St Isidore of Seville was canonized in the 7th century, by the 8th council of Toledo, 14 years after his death. This manner of canonization continued occasionally down to the 12th century. The last instance of a saint canonized in that way, is that of St Walter abbot of Pontoise, who was declared a saint by the archbishop of Rouen in the year 1153.

Saint.

In the 12th century, in order to prevent mistakes in so delicate a matter, Pope Alexander III. judged it proper to reserve this declaration to the holy see of Rome exclusively; and decreed that no one should for the future be honoured by the church as a saint without the express approbation of the pope.

Since that time, the canonization of saints has been carried on in the form of a process; and there is at Rome a congregation of cardinals, called the *congregation of holy rites*, who are assisted by several divines under the name of *consultors*, who examine such matters, and prepare them for the decision of his holiness. When therefore any potentate, province, city, or religious body, think fit, they apply to the pope for the canonization of any person.

The first juridical step in this business must be taken by the bishop in whose diocese the person for whom the application is made had lived and died, who by his own authority calls witnesses to attest the opinion of the holiness, the virtues, and miracles, of the person in question. When the deceased has resided in different dioceses, it may be necessary that different bishops take such depositions; the originals of which are preserved in the archives of their respective churches, and authentic copies sealed up are sent to Rome by a special messenger, where they are deposited with the congregation of rites, and where they must remain for the space of ten years without being opened. They are then opened, and maturely examined by the congregation, and with their advice the pope allows the cause to go on or not as he thinks proper. The solicitors for the canonization are then referred by his holiness to the said congregation, which, with his authority, gives a commission to one or more bishops, or other respectable persons, to examine, on the spot and in the places where the person in question has lived and died, into his character and whole behaviour. These commissioners summon witnesses, take depositions, and collect letters and other writings of the venerable man, and get all the intelligence they can concerning him, and the opinion generally entertained of him. The report of these commissioners is considered attentively and at length by the congregation, and every part of it discussed by the consultors, when the congregation determines whether or not they can permit the process to go on. If it be allowed to proceed, a cardinal, who is called *ponent*, undertakes to be the principal agent in that affair. The first question then that comes to be examined is, whether or not the person proposed for canonization can be proved to have been in an eminent degree endued with the moral virtues of prudence, justice, fortitude, and temperance; and with the theological virtues of faith, hope, and charity? All this is canvassed with great deliberation; and there is a distinguished ecclesiastic called the *promoter of the holy faith*, who is sworn to make all reasonable objections to the proofs that are adduced in favour of the canonization. If the decision be favourable, then the proofs of miracles done to show the sanctity of the person in question are permitted to be brought forward; when two miracles must be verified to the satisfaction of the congregation, both as to the reality of the facts, and as to their having been truly above the power of nature. If the decision on this comes out likewise favourable, then the whole is laid

Saint.

before the pope and what divines he chooseth (A). Public prayer and fasting are likewise prescribed, in order to obtain light and direction from heaven. After all this long procedure, when the pope is resolved to give his approbation, he issues a bull, first of *beatification*, by which the person is declared *blest*, and afterwards another of *sanctification*, by which the name of *saint* is given him. These bulls are published in St Peter's church with very great solemnity.

A person remarkable for holiness of life, even before he is canonized, may be venerated as such by those who are persuaded of his eminent virtue, and his prayers may be implored; but all this must rest on private opinion. After his canonization, his name is inserted in the Martyrology, or catalogue of saints, of which the respective portion is read every day in the choir at the divine office. A day is also appointed for an yearly commemoration of him. His name may be mentioned in the public church service, and his intercession with God besought. His relics may be enshrined: he may be painted with rays of glory, and altars and churches may be dedicated to God in honour of him, and in thanksgiving to the divine goodness for the blessings bestowed on him in life, and for the glory to which he is raised in heaven.

The affair of a canonization is necessarily very expensive, because so many persons must be employed about it; so many journeys must be made; so many writings for and against it must be drawn out. The expence altogether amounts to about 25,000 Roman crowns, or L. 6000 Sterling. But it is generally contrived to canonize two or three at a time, by which means the particular expence of each is very much lessened, the solemnity being common.

It often happens that the solicitors for a canonization are unsuccessful. Thus the Jesuits, even when their interest at Rome was greatest, could not obtain the canonization of Bellarmine; and it is remarkable, that the objection is said to have been, his having defended the indirect power of the pope over Christian princes even in temporals.

Several authors have written on canonization, and particularly Prosper Lambertini, afterwards pope under the name of Benedict XIV. who had held the office of *promotor of the faith* for many years. He published on it a large work in several volumes, in folio, of which there is an abridgment in French. In this learned performance there is a full history of the canonization of saints in general, and of all the particular processes of that kind that are on record: an account is given of the manner of proceeding in these extraordinary trials; and it is shown, that, besides the assistance of providence, which is implored and expected in what is so much connected with religion, all prudent human means are made use of, in order to avoid mistakes, and to obtain all the evidence of which the matter is susceptible, and which must appear more than sufficient to every impartial judge. See POPE, POPERY, &c.

Saint-Foin, in botany, a species of the *hedysarum*. See HEDYSARUM; and AGRICULTURE, n° 180.

SAINT Januarius's Blood. See CHEMISTRY, n° 800. SAINTES, an ancient and considerable town of France. It is the capital of Saintonge, and before the revolution was a bishop's see. It contained likewise several convents, a Jesuits college, and an abbey remarkable for its steeple, built with small stones, which admits the light. It is seated on an eminence, 37 miles south-east of Rochelle, and 262 south-west of Paris. W. Long. 0. 34. N. Lat. 45. 45. The castle is seated on a rock, and is reckoned impregnable.

This city was a Roman colony; and those conquerors of the earth, who polished the nations they subdued, have left behind them the traces of their magnificence. In a hollow valley between two mountains, and almost adjoining to one of the suburbs, are the ruins of the amphitheatre. Though now in the last stage of decay, its appearance is august and venerable. In some parts, scarce any of the arches are to be seen; but the east end is still in a great degree of preservation. From its situation in a valley, and from the ruins of an aqueduct which conveyed water to the town from near three leagues distance, it has been supposed that Naumachie were represented in it; but this amounts only to conjecture. A triumphal arch, on which is an inscription in Roman letters, merits likewise attention. It was erected to Germanicus, on the news of his death, so universally lamented throughout the empire. The river Charente furrounds this city, as the Severn does that of Shrewsbury, describing the form of a horse-shoe.

Except the remains of Roman grandeur yet visible at Saintes, the place contains very little to detain or amuse a traveller. It is built with great irregularity; the streets are narrow and winding, the houses mean, and almost all of them are some centuries old. The cathedral has been repeatedly defaced and destroyed by Normans and Huguenots, who made war alike on every monument of art or piety. One tower only escaped their rage, which is said to have been built as early as the year 800 by Charlemagne. It is of an enormous magnitude, both as to height and circumference. These circumstances have probably conduced more to its preservation during the fury of war, than any veneration for the memory of its founder, or for the sanctity of its institution.

SAINTONGE, a province of France, bounded on the east by Angoumois and Perigord, on the north by Poitou and the territory of Aunis; on the west by the ocean, and on the south by Bourdelois and Giron, about 62 miles in length and 30 in breadth. The river Charente runs through the middle of it, and renders it one of the finest and most fertile provinces in France, abounding in all sorts of corn and fruits; and they make the best salt here in Europe.

THE SAINTS, three leagues distant from Guadaloupe, are two very small islands, which, with another yet smaller, form a triangle, and have a tolerable harbour. Thirty Frenchmen were sent thither in 1648; but were soon driven away by an excessive drought, which dried up their only spring before they had time to make any reservoirs. A second attempt was made in 1652, and

Saint
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Saints.

A) His holiness generally appoints three consistories; in the first of which the cardinals only assist, and give their opinion; in the second, a preacher pronounces a speech in praise of the candidate before a numerous audience; to the third, not only the cardinals, but all the bishops who are at Rome, are invited, and all of them give their vote by word of mouth.

Sakrada-
wendra
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Salamanca.

and lasting plantations were established, which now yield 50,000 weight of coffee, and 100,000 of cotton.

SAKRADAWENDRA is the name of one of the Ceylonese deities, who commands and governs all the rest, and formerly answered the prayers of his worshippers; but according to the fabulous account which is given of him, the golden chair, on which he sat, and the foot of which was made of wax, that was softened by their prayers and tears, and sunk downward, so that he could take notice of their requests and relieve them, being disposed of among the poor, they no longer derive any benefit from him, or pay him any reverence. See **BUDUN**.

SAL. See **SALT**.

SAL Alembroth. See **CHEMISTRY**, n° 1047.

Native SAL Ammoniac. This salt, according to Mon-
gou, is met with in the form of an efflorescence on the surface of the earth, or adhering in powder to rocks. Sometimes, as in Persia and the country of the Kalmucks, it is found as hard as stone. It is met with of different colours, as grey, black, green, and red, in the neighbourhood of volcanoes, in the caverns or grottoes of Puzzuoli, and in the mineral lakes of Tuscany, as well as in some mountains of Tartary and Thibet. At Solfatera, near Naples, it is found in the crevices, of a yellowish colour, like common sal-ammoniac more than once sublimed. For common sal-ammoniac, see **CHEMISTRY-Index at Ammoniac and Ammoniacal Salt**.

SAL, Fixed. See **CHEMISTRY** n° 1016.

SAL, Glauber's secret. See **CHEMISTRY-Index at Glauber**.

SAL Nitrous. See **CHEMISTRY**, n° 292, &c.

SAL Vegetable. See **CHEMISTRY-Index at Salts**, &c.

SAL Volatile. See **CHEMISTRY-Index at Volatile**.

SAL Digestivus, Sylvii. See **CHEMISTRY**, n° 379, 421, 794.

SAL Diureticus. See **CHEMISTRY**, n° 868.

SAL Microcosmicus. See **CHEMISTRY**, n° 606. and 905.

SAL Prunelle. See **CHEMISTRY**, n° 744.

SAL Sedativus. See **CHEMISTRY-Index at Borax**.

SAL Volatile Oleosum. See **CHEMISTRY**, n° 1036.

SALADIN, a famous sultan of Egypt, equally renowned as a warrior and legislator. He supported himself by his valour, and the influence of his amiable character, against the united efforts of the chief Christian potentates of Europe, who carried on the most unjust wars against him, under the false appellation of *Holy Wars*. See the articles **EGYPT** and **CROISADE**.

SALAMANCA, an ancient, large, rich, and populous city of Spain, in the kingdom of Leon, situated on the river Tormes, about 75 miles west from Madrid. It is said to have been founded by Teucer the son of Telamon, who called it *Salamis* or *Salmantica*, in memory of the ancient Salamis. Here is an university, the greatest in Spain, and perhaps inferior to none in the whole world, in respect at least to its revenues, buildings, number of scholars, and masters. Here are also many grand and magnificent palaces, squares, convents, churches, colleges, chapels, and hospitals. The bishop of this country is suffragan to the archbishop of Compostella, and has a yearly revenue of 1000 ducats. A Roman way leads from hence to Merida and Seville, and there is an old Roman bridge over the river. Of

the colleges in the university, four are appropriated to young men of quality; and near it is an infirmary for poor sick scholars. W. Long. 6. 10. N. Lat. 41. 0.

SALAMANDER, in zoology. See **LACERTA**.

SALAMIS, an island of the Archipelago, situated in E. Long. 34. 0. N. Lat. 37. 32.—It was famous in antiquity for a battle between the Greek and Persian fleets. In the council of war held among the Persians on this occasion, all the commanders were for engaging, because they knew this advice to be most agreeable to the king's inclinations. Queen Artemisia was the only person who opposed this resolution. She was queen of Halicarnassus; and followed Xerxes in this war with five ships, the best equipped of any in the fleet, except those of the Sidonians. This princess distinguished herself on all occasions by her singular courage, and still more by her prudence and conduct. She represented, in the council of war we are speaking of, the dangerous consequences of engaging a people that were far more expert in maritime affairs than the Persians; alleging, that the loss of a battle at sea would be attended with the ruin of their army; whereas, by spinning out the war, and advancing into the heart of Greece, they would create jealousies and divisions among their enemies, who would separate from one another, in order to defend each of them their own country; and that the king might, almost without striking a blow, make himself master of Greece. This advice, though very prudent, was not followed, but an engagement unanimously resolved upon. Xerxes, in order to encourage his men by his presence, caused a throne to be erected on the top of an eminence, whence he might safely behold whatever happened; having several scribes about him, to write down the names of such as should signalize themselves against the enemy. The approach of the Persian fleet, with the news that a strong detachment from the army was marching against Cleombrotus, who defended the isthmus, struck such a terror into the Peloponnesians, that they could not by any intreaties be prevailed upon to stay any longer at Salamis. Being therefore determined to put to sea, and sail to the isthmus, Themistocles privately dispatched a trusty friend to the Persian commanders, informing them of the intended flight; and exhorting them to send part of their fleet round the island, in order to prevent their escape. The same messenger assured Xerxes, that Themistocles, who had sent him that advice, designed to join the Persians, as soon as the battle began, with all the Athenian ships. The king giving credit to all he said, immediately caused a strong squadron to sail round the island in the night in order to cut off the enemy's flight. Early next morning, as the Peloponnesians were preparing to set sail, they found themselves encompassed on all sides by the Persian fleet; and were against their will obliged to remain in the straits of Salamis and expose themselves to the same dangers with their allies. The Grecian fleet consisted of 380 sail, that of the Persians of 2000 and upwards. Themistocles avoided the engagement till a certain wind, which rose regularly every day at the same time, and which was entirely contrary to the enemy, began to blow. As soon as he found himself favoured by this wind, he gave the signal for battle. The Persians, knowing that they fought under their king's eye, advanced with great resolution; but the wind blowing directly in their faces, and the largeness and

Salamander,
Salamis.

Salamis,
Salary.

number of their ships embarrassing them in a place so strait and narrow, their courage soon abated; which the Greeks observing, used such efforts, that in a short time breaking into the Persian fleet, they entirely disordered them; some flying towards Phalarus, where their army lay encamped; others saving themselves in the harbours of the neighbouring islands. The Ionians were the first that betook themselves to flight. But Queen Artemisia distinguished herself above all the rest, her ships being the last that fled: which Xerxes observing, cried out that the men behaved like women, and the women with the courage and intrepidity of men. The Athenians were so incensed against her, that they offered a reward of 10,000 drachmas to any one that should take her alive: but she, in spite of all their efforts, got clear of the ships that pursued her, and arrived safe on the coast of Asia. In this engagement, which was one of the most memorable actions we find recorded in history, the Grecians lost 40 ships; and the Persians 200, besides a great many more that were taken, with all the men and ammunition they carried.

The island of Salamis is of a very irregular shape; it was reckoned 70 or 80 stadia, *i. e.* 8 or 10 miles long, reaching westward as far as the mountains called *Kerata* or *The Horns*. Pausanias informs us, that on one side of this island stood in his time a temple of Diana, and on the other a trophy for a victory obtained by Themistocles, together with the temple of Cythereus, the site of which is now thought to be occupied by the church of St Nicholas.

The city of Salamis was demolished by the Athenians, because in the war with Cassander it surrendered to the Macedonians, from disaffection. In the second century, when it was visited by Pausanias, some ruins of the Agora or market-place remained, with a temple and image of Ajax; and not far from the port was shown a stone, on which, they related, Telamon sat to view the Salaminian ships on their departure to join the Grecian fleet at Aulis. The walls may still be traced, and it has been conjectured were about four miles in circumference. The level space within them was now covered with green corn. The port is choked with mud, and was partly dry. Among the scattered marbles are some with inscriptions. One is of great antiquity, before the introduction of the Ionic alphabet. On another, near the port, the name of Solon occurs. This renowned lawgiver was a native of Salamis, and a statue of him was erected in the market-place, with one hand covered by his vest, the modest attitude in which he was accustomed to address the people of Athens. An inscription on black marble was also copied in 1676 near the ruin of a temple, probably that of Ajax. The island of Salamis is now inhabited by a few Albanians, who till the ground. Their village is called *Ampelaki*, "the Vineyard," and is at a distance from the port, standing more inland. In the church are marble fragments and some inscriptions.

SALARY, a recompense or consideration made to a person for his pains and industry in another man's business. The word is used in the statute 23 Edw. III. cap. 1. *Salarium* at first signified the rents or profits of a sale, hall, or house (and in Gascoigne they now call the seats of the gentry *sala's*, as we do *halls*); but afterwards it was taken for any wages, stipend, or annual allowance.

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SALACIA, in botany; a genus of the trigynia order, belonging to the gynandria class of plants. The calyx is quinquefid; the corolla quinquepetalous; the antheræ sitting on the top of the germ.

SALE, is the exchange of a commodity for money; barter, or permutation, is the exchange of one commodity for another. When the bargain is concluded, an obligation is contracted by the buyer to pay the value, and by the seller to deliver the commodity, at the time and place agreed on, or immediately, if no time be specified.

In this, as well as other mercantile contracts, the safety of commerce requires the utmost good faith and veracity. Therefore, although, by the laws of England, a sale, above the value of 10*l.* be not binding, unless earnest be paid, or the bargain confirmed by writing, a merchant would lose all credit who refused to perform his agreement, although these legal requisites were omitted.

When a specific thing is sold, the property, even before delivery, is in some respect vested in the buyer; and if the thing perishes, the buyer must bear the loss. For example, if a horse dies before delivery, he must pay the value: but if the bargain only determines the quantity and quality of the goods, without specifying the identical articles, and the seller's warehouse, with all his goods, be burned, he is intitled to no payment. He must also bear the loss if the thing perish through his fault; or when a particular time and place of delivery is agreed on, if it perish before it be tendered, in terms of the bargain.

If a person purchase goods at a shop without agreeing for the price, he is liable for the ordinary market-price at the time of purchase.

If the buyer proves insolvent before delivery, the seller is not bound to deliver the goods without payment or security.

If the importation, or use of the commodities sold, be prohibited by law, or if the buyer knows that they were smuggled, no action lies for delivery.

The property of goods is generally presumed, in favour of commerce, to belong to the possessor, and cannot be challenged in the hands of an onerous purchaser. But to this there are some exceptions. By the Scots law, stolen goods may in all cases be reclaimed by the proprietor, and also by the English law, unless they were bought *bona fide* in open market; that is, in the accustomed public places, on stated days in the country, or in a shop in London; and horses may be reclaimed, unless the sale be regularly entered by the book-keeper of the market. In all cases, if the goods be evicted by the lawful proprietor, the seller is liable to the purchaser for the value.

Actions for payment of shop-accounts, as well as other debts not constituted by writing, are limited in England to six years. The testimony of one witness is admitted; and the seller's books, although the person that kept them be dead, are good evidence for one year. In Scotland, merchants' books may be proved within three years of the date of the last article, by one witness, and the creditor's books and oath in supplement. After three years, they can only be proved by the oath or writ of the debtor. A merchant's books are in all cases good evidence against him.

SALEP, in the materia medica, the dried root of a species of orchis. See ORCHIS.

Salacia
||
Salep.

Salep.

Several methods of preparing salep have been proposed and practised. Geoffroy has delivered a very judicious process for this purpose in the *Histoire de l'Académie Royale des Sciences*, 1740; and Retmus, in the Swedish Transactions 1764, has improved Geoffroy's method. But Mr Moulton of Rochdale has lately favoured the public with a new manner of curing the orchis root; by which salep is prepared, at least equal, if not superior, to any brought from the Levant. The new root is to be washed in water; and the fine brown skin which covers it is to be separated by means of a small brush, or by dipping the root in hot water, and rubbing it with a coarse linen cloth. When a sufficient number of roots have been thus cleaned, they are to be spread on a tin-plate, and placed in an oven heated to the usual degree, where they are to remain six or ten minutes, in which time they will have lost their milky whiteness, and acquired a transparency like horn, without any diminution of bulk. Being arrived at this state, they are to be removed, in order to dry and harden in the air, which will require several days to effect; or by using a very gentle heat, they may be finished in a few hours.

Salep thus prepared, may be afforded in those parts of England where labour bears a high value, at about eight-pence or ten-pence per pound: And it might be sold still cheaper, if the orchis were to be cured, without separating from it the brown skin which covers it; a troublesome part of the process, and which does not contribute to render the root either more palatable or salutary. Whereas the foreign salep is now sold at five or six shillings per pound.

Salep is said to contain the greatest quantity of vegetable nourishment in the smallest bulk. Hence a very judicious writer, to prevent the dreadful calamity of famine at sea, has lately proposed that the powder of it should constitute part of the provisions of every ship's company. This powder and portable soup, dissolved in boiling water, form a rich thick jelly, capable of supporting life for a considerable length of time. An ounce of each of these articles, with two quarts of boiling water, will be sufficient subsistence for a man a day; and as being a mixture of animal and vegetable food, must prove more nourishing than double the quantity of rice-cake, made by boiling rice in water: which last, however, sailors are often obliged solely to subsist upon for several months; especially in voyages to Guinea, when the bread and flour are exhausted, and the beef and pork, having been salted in hot countries, are become unfit for use.

• *Essays
Medical and
Experimental.*

"But as a wholesome nourishment (says Dr Percival *), rice is much inferior to salep. I digested several alimentary mixtures prepared of mutton and water, beat up with bread, sea-biscuit, salep, rice-flower, sago-powder, potato, old cheese, &c. in a heat equal to that of the human body. In 48 hours they had all acquired a vinous smell, and were in brisk fermentation, except the mixture with rice, which did not emit many air-bubbles, and was but little changed. The third day several of the mixtures were sweet, and continued to ferment; others had lost their intestine motion, and were sour; but the one which contained the rice was become putrid. From this experiment it appears, that rice as an aliment is slow of fermentation, and a very weak corrector of putrefaction. It is therefore an im-

Salep.

proper diet for hospital-patients; but more particularly for sailors in long voyages; because it is incapable of preventing, and will not contribute much to check, the progress of that fatal disease, the sea-scurvy. Under certain circumstances, rice seems disposed of itself, without mixture, to become putrid; for by long keeping it sometimes acquires an offensive savor. Nor can it be considered as a very nutritive kind of food, on account of its difficult solubility in the stomach. Experience confirms the truth of this conclusion; for it is observed by the planters in the West Indies, that the negroes grow thin, and are less able to work, whilst they subsist upon rice.

"Salep has the singular property of concealing the taste of salt water; a circumstance of the highest importance at sea, when there is a scarcity of fresh water. I dissolved a dram and a half of common salt in a pint of the mucilage of salep, so liquid as to be potable, and the same quantity in a pint of spring-water. The salep was by no means disagreeable to the taste, but the water was rendered extremely unpalatable. This experiment suggested to me the trial of the orchis root as a corrector of acidity, a property which would render it a very useful diet for children. But the solution of it, when mixed with vinegar, seemed only to dilute like an equal proportion of water, and not to cover its sharpness. Salep, however, appears by my experiments to retard the acetous fermentation of milk; and consequently would be a good lishing for milk-pottage, especially in large towns, where the cattle being fed upon four draff must yield acefcent milk.

"Salep in a certain proportion, which I have not yet been able to ascertain, would be a very useful and profitable addition to bread. I directed one ounce of the powder to be dissolved in a quart of water, and the mucilage to be mixed with a sufficient quantity of flour, salt, and yeast. The flour amounted to two pounds, the yeast to two ounces, and the salt to 80 grains. The loaf when baked was remarkably well fermented, and weighed three pounds two ounces. Another loaf, made with the same quantity of flour, &c. weighed two pounds and 12 ounces; from which it appears that the salep, though used in so small a proportion, increased the gravity of the loaf six ounces, by absorbing and retaining more water than the flour alone was capable of. Half a pound of flour and an ounce of salep were mixed together, and the water added according to the usual method of preparing bread. The loaf when baked weighed 13 ounces and an half; and would probably have been heavier if the salep had been previously dissolved in about a pint of water. But it should be remarked, that the quantity of flour used in this trial was not sufficient to conceal the peculiar taste of the salep.

"The restorative, mucilaginous, and demulcent qualities of the orchis root, render it of considerable use in various diseases. In the sea-scurvy it powerfully obviates the acrimony of the fluids, and at the same time is easily assimilated into a mild and nutritious chyle. In diarrhoeas and the dysentery it is highly serviceable, by sheathing the internal coat of the intestines, by abating irritation, and gently correcting putrefaction. In the symptomatic fever, which arises from the absorption of pus from ulcers in the lungs, from wounds, or from amputation, salep used plentifully is an admirable demul-

cent, and well adapted to resist the dissolution of the crasis of the blood, which is so evident in these cases. And by the same mucilaginous quality, it is equally efficacious in the strangury and dysury; especially in the latter, when arising from a venereal cause, because the discharge of urine is then attended with the most exquisite pain, from the ulceration about the neck of the bladder and through the course of the urethra. I have found it also an useful aliment for patients who labour under the stone or gravel." The ancient chemists appear to have entertained a very high opinion of the orchis root, as appears from the *secreta secretorum* of Raymund Lully, a work dated 1565.

SALERNO, an ancient and considerable town of Italy, in the kingdom of Naples, and capital of the Hither Principato, with an archbishop's see, a castle, harbour, and an university chiefly for medicine. It is seated at the bottom of a bay of the same name. E. Long. 14. 43. N. Lat. 40. 45.

SALET, in war, a light covering or armour for the head, anciently worn by the light-horse, only different from the casque in that it had no crest and was little more than a bare cap.

SALIENT, in fortification, denotes projecting. There are two kinds of angles, the one salient, which have their point outwards; the other re-entering, which have their points inwards.

SALIENT, **SALIENT**, or **SAILLANT**, in heraldry, is applied to a lion, or other beast, when its fore-legs are raised in a leaping posture.

SALIC, or **SALIQUE**, **LAW**, (*Lex Salica*), an ancient and fundamental law of the kingdom of France, usually supposed to have been made by Pharamond, or at least by Clovis; in virtue whereof males only are to inherit.

Some, as Postellus, would have it to have been called *Salic*, q. d. *Gallie*, because peculiar to the Gauls. Fer Montanus insists, it was because Pharamond was at first called *Salicus*. Others will have it to be so named, as having been made for the salic lands. These were noble fiefs which their first kings used to bestow on the salians, that is, the great lords of their hall or court, without any other tenure than military service; and for this reason, such fiefs were not to descend to women, as being by nature unfit for such a tenure. Some, again, derive the origin of this word from the Salians, a tribe of Franks that settled in Gaul in the reign of Julian, who is said to have given them lands on condition of their personal service in war. He even passed the conditions into a law, which the new conquerors acquiesced in, and called it *salic*, from the name of their former countrymen.

SALICORNIA, **JOINTED GLASS-WORT**, or *Saltwort*: A genus of the monogynia order, belonging to the monandria class of plants; and in the natural method ranking under the 12th order, *Holoraceae*. The calyx is ventricose, or a little swelling out and entire; there are no petals, and but one seed. There are four species, of which the most remarkable are, 1. The fruticosa, with obtuse points, grows plentifully in most of the salt marshes which are overflowed by the tides in many parts of England. It is an annual plant, with thick, succulent, jointed stalks, which trail upon the ground. The flowers are produced at the ends of the joints toward the extremity of the branches, which are small, and scarce discernible by the naked eye. 2. The

perennis, with a shrubby branching stalk, grows naturally in Sheppey island. This hath a shrubby branching stalk about six inches long; the points of the articulations are acute; the stalks branch from the bottom, and form a kind of pyramid. They are perennial, and produce their flowers in the same manner as the former.

The inhabitants near the sea-coasts where these plants grow, cut them up toward the latter end of summer, when they are fully grown; and, after having dried them in the sun, they burn them for their ashes, which are used in making of glass and soap. These herbs are by the country people called *kelp*, and promiscuously gathered for use. See the article **SALSOLA**; also *Dyeing of LEATHER*, p. 750, note A.

SALII, in Roman antiquity, priests of Mars, whereof there were 12, instituted by Numa, wearing painted, particoloured garments, and high bonnets; with a steel cuirasse on the breast. They were called *salii*, from *saltare* "to dance;" because, after assisting at sacrifices, they went dancing about the streets, with bucklers in their left-hand, and a rod in their right, striking musically with their rods on one another's bucklers, and singing hymns in honour of the gods.

SALINO, one of the Lipari islands, situated between Sicily and Italy, consists of two mountains both in an high state of cultivation. The one lying more towards the north than the other is rather the highest of the two, and is called *del Capo*, "the head." The other is called *della Fossa felice*, or "the happy valley." One third of the extent of these hills from the bottom to the summit is one continued orchard, consisting of vines, olive, fig, plum, apricot, and a vast diversity of other trees. The white roofs of the houses, which are everywhere interspersed amid this diversity of verdure and foliage, contribute to variegate the prospect in a very agreeable manner. The back part of almost all the houses is shaded by an arbour of vines, supported by pillars of brick, with cross poles to sustain the branches and foliage of the vines. Those arbours shelter the houses from the rays of the sun, the heat of which is quite scorching in these southern regions. The vines are extremely fruitful; the poles bending under the weight of the grapes.

The scenes in this island are more interesting to the lover of natural history than to the antiquarian. See **RETICULUM**.

On the south side of the island, however, there are still to be seen some fine ruins of an ancient bath, a Roman work. They consist of a wall 10 or 11 fathoms in extent, and terminating in an arch of no great height, of which only a small part now remains. The building seems to have been reduced to its present state rather by the ravages of men than the injuries of time. Almost all the houses in the island are built of materials which have belonged to ancient monuments. The ancients had, in all probability, baths of fresh as well as of salt water in this island; for whenever the present inhabitants have occasion for a spring of fresh water, they have only to dig a pit on the shore, and pure sweet water flows in great abundance.

There were formerly mines of alum here, from which the inhabitants drew a very considerable yearly revenue. But whether they are exhausted, or whatever circumstance may have caused them to be given up, they are

Salil.
Salino.

Salisbury. now no longer known. The island abounds in a variety of fruits.

On the east-side it is very populous. There are two places which are both called *Lingua*, "the tongue," and which contain a good number of inhabitants; the one is near Salino, the other is distinguished by the name of *St Marina*: there are besides these two other villages. All these places together may contain about 4000 inhabitants: the circumference of the island may be about 14 miles.

SALISBURY, the capital of the county of Wiltshire in England, situated in W. Long. 1. 55. N. Lat. 51. 3. This city owed its first rise to its cathedral, which was begun in 1219, and finished in 1258. According to an estimate delivered in to Henry III. it cost forty thousand marks. It is a Gothic building, and is certainly the most elegant and regular in the kingdom. The doors and chapels are equal in number to the months, the windows to the days, and the pillars and pilasters to the hours in a year. It is built in the form of a lantern, with a spire in the middle, and nothing but buttresses and glass windows on the outside. The spire is the highest in the kingdom, being 410 feet, which is twice the height of the monument in London. The pillars and pilasters in the church are of fusile marble; the art of making which is now either entirely lost or little known. This magnificent church has lately undergone most beautiful alterations; with an addition of two fine windows, and an organ presented by the king. The roof of the chapter-house, which is 50 feet in diameter and 150 in circumference, bears all upon one slender pillar, which is such a curiosity as can hardly be matched in Europe. The turning of the western road through the city in the reign of Edward III. was a great advantage to it. The chancellorship of the most noble order of the garter, which is annexed to this see, was first conferred on bishop Richard Beauchamp. The hospital of St Michael's, near this city, was founded by one of its bishops. Dr Seth Ward, bishop of this see in the reign of Charles II. contributed greatly to the making the river Avon navigable to Christ-church in Hampshire. The same prelate, in 1683, built an hospital for the entertainment of the widows of poor clergymen. There are three other churches besides the cathedral, which is without the liberty of the city, and a greater number of boarding-schools, especially for young ladies, than in any other town in England. Here is a manufacture of druggets, flannels, bonelace, and those cloths called *Salisbury whites*; in consideration of which, and its fairs, markets, assises, boarding-schools, and clergy, the city may be justly said to be in a flourishing condition. It was incorporated by Henry III. and is governed by a mayor, high-steward, recorder, deputy-recorder, 24 aldermen, and 30 assistants or common-council men. The number of souls is about 10,000. A new council chamber is just now (June 1794) building here with proper courts of justice, by the earl of Radnor; to which Mr. Hufsey is also a great benefactor. That quarter called the *clase*, where the canons and prebendaries live, is like a fine city of itself. Here is an assembly for the ladies every Tuesday, and coaches set out from hence to London every day. In this town are several charity-schools; the expence of one of them

is entirely defrayed by the bishop. The city gives title of earl to the noble family of Cecil.

SALISBURY Plain, the extensive downs in Wiltshire, which are thus denominated, form in summer one of the most delightful parts of Great Britain for extent and beauty. It extends 28 miles west of Weymouth, and 25 east to Winchester; and in some places is near 40 miles in breadth. That part about Salisbury is a chalky down, and is famous for feeding numerous flocks of sheep. Considerable portions of this tract are now enclosing, the advantages of which are so great, that we hope the whole will undergo so beneficial an alteration.

SALIVA, is that fluid by which the mouth and tongue are continually moistened in their natural state; and is supplied by glands which form it, that are called *salivary glands*. This humour is thin and pellucid, incapable of being concreted by the fire, almost without taste and smell. By chewing, it is expressed from the glands which separate it from the blood, and is intimately mixed with our food, the digestion of which it greatly promotes. In hungry persons it is acrid, and copiously discharged; and in those who have fasted long it is highly acrid, penetrating, and resolvent. A too copious evacuation of it produces thirst, loss of appetite, bad digestion, and an atrophy.

SALIVATION, in medicine, a promoting of the flux of saliva, by means of medicines, mostly by mercury. The chief use of salivation is in diseases belonging to the glands and membrana adiposa, and principally in the cure of the venereal disease; though it is sometimes also used in epidemic diseases, cutaneous diseases, &c. whose crises tend that way.

SALIX, the **WILLOW**, in botany: A genus of the diandria order, belonging to the diœcia class of plants; and in the natural method ranking under the 50th order, *Amentaceæ*. The amentum of the male is scaly; there is no corolla; but a nectariferous glandule at the base of the flower. The female amentum is scaly; there is no corolla; the style bifid; the capsule unilocular and bivalved; the seeds pappous. The willow trees have been frequently the theme of poetical description, both in ancient and modern times. In Virgil, Horace, and in Ovid, we have many exquisite allusions to them and their several properties; and for a melancholy lover or a contemplative poet, imagination cannot paint a fitter retreat than the banks of a beautiful river, and the shade of a drooping willow. There are 31 species; of which the most remarkable are, 1. The caprea, or common fallow-tree, grows to but a moderate height, having smooth, dark-green, brittle branches; oval, waved, rough leaves, indented at top, and woolly underneath. It grows abundantly in this country, but more frequently in dry than moist situations: it is of a brittle nature, so is unfit for the basket-makers; but will serve for poles, stakes, and to lop for fire-wood; and its timber is good for many purposes. 2. The alba, white, or silver-leaved willow, grows to a great height and considerable bulk, having smooth pale-green shoots; long, spear-shaped, acuminate, sawed, silvery-white leaves, being downy on both sides, with glands below the serratures. This is the common white willow, which grows abundantly about towns and villages, and by the sides of rivers and brooks, &c. 3. The vitellina, yellow or golden willow, grows

Saliva
||
Salix

Salix.
Sallee.

grows but to a moderate height; having yellow, very pliant, shoots; oval, acute, serrated, very smooth leaves, with the serratures cartilaginous, and with callous punctures on the footstalks. 4. The purpurea, purple, or red willow, grows to a large height, having long, reddish, very pliant shoots, and long spear-shaped, serrated, smooth leaves, the lower ones being opposite. 5. The viminalis, or osier-willow, grows but a moderate height, having slender rod-like branches; very long, pliant, greenish shoots; and very long, narrow, spear-shaped, acute, almost entire leaves, hoary, and silky underneath. 6. The pentandria, pentandrous, broad-leaved, sweet-scented willow, grows to some considerable stature, having brownish-green branches; oblong, broad, serrated, smooth, sweet-scented leaves, shining above; and pentandrous flowers. 7. The triandria, or triandrous willow, grows to a large stature, having numerous, erect, greyish-green branches, and pliant shoots; oblong, acute-pointed, serrated smooth, shining-green leaves, eared at the base; and triandrous flowers. 8. The fragilis, fragile or crack-willow, rises to a middling stature; with brownish, very fragile, or brittle branches, long, oval-lanceolate, sawed, smooth leaves of a shining-green on both sides, having dentated glandular foot-stalks. This sort in particular being exceedingly fragile, so that it easily cracks and breaks, is unfit for culture in osier-grounds. 9. The Babylonica, Babylonian pendulous salix, commonly called *weeping willow*, grows to a largish size, having numerous, long, slender, pendulous branches, hanging down loosely all round in a curious manner, and long, narrow, spear-shaped, serrated, smooth leaves. This curious willow is a native of the east, and is retained in our hardy plantations for ornament, and exhibits a most agreeable variety; particularly when disposed singly by the verges of any piece of water, or in spacious openings of grass-ground.

All the species of salix are of the tree kind, very hardy, remarkably fast growers, and several of them attaining a considerable stature when permitted to run up to standards. They are mostly of the aquatic tribe, being generally the most abundant and of most prosperous growth in watery situations; they however will grow freely almost anywhere, in any common soil and exposure; but grow considerably the fastest and strongest in low moist land, particularly in marshy situations, by the verges of rivers, brooks, and other waters; likewise along the sides of watery ditches, &c. which places often lying waste, may be employed to good advantage, in plantations of willows, for different purposes.

SALLEE, an ancient and considerable town of Africa in the kingdom of Fez, with a harbour and several ports. The harbour of Sallee is one of the best in the country; and yet, on account of a bar that lies across it, ships of the smallest draught are forced to unload and take out their guns before they can get into it. There are docks to build ships; but they are hardly ever used, for want of skill and materials. It is a large place, divided into the Old and New Towns, by the river Guero. It has long been famous for its rovers or pirates, which make prizes of all Christian ships that come in their way, except there is a treaty to the contrary. The town of Sallee in its present state, though large, presents nothing worthy the observation of the

traveller except a battery of 24 pieces of cannon fronting the sea, and a redoubt at the entrance of the river, which is about a quarter of a mile broad, and penetrates several miles into the interior country. W. Long, 6. 30. N. Lat. 34. 0.

SALLET, or SALLAD, a dish of eatable herbs, ordinarily accompanying roast meat; composed chiefly of crude, fresh herbage, seasoned with salt, oil, and vinegar.

Menage derives the word from the Latin *saluta*; of *sal*, "salt;" others from *salcedo*; Du-Cange from *salgama*, which is used in Ausonius and Columella in the same sense.

Some add mustard, hard eggs, and fugar; others, pepper, and other spices, with orange-peel, saffron, &c.

The principal sallet-herbs, and those which ordinarily make the basis of our English sallets, are lettuce, celeri, endive, cresses, radish, and rape; along with which, by way of furniture, or additional, are used purslane, spinach, sorrel, tarragon, burnet, corn-sallet, and chervil.

The gardeners call some plants *small herbs* in sallets; these should always be cut while in the seed-leaf: as cresses, mustard, radish, turnep, spinach, and lettuce; all which are raised from seeds sown in drills, or lines, from the middle of February to the end of March, under glasses or frames; and thence to the middle of May, upon natural beds, warmly exposed; and during the summer heats in more shady places; and afterwards in September, as in March, &c.; and lastly, in the rigour of the winter, in hot-beds. If they chance to be frozen in very frosty weather, putting them in spring-water two hours before they be used recovers them.

SALLO (Denis de), a French writer, famous for being the projector of literary journals, was born at Paris in 1626. He studied the law, and was admitted a counsellor in the parliament of Paris in 1652. It was in 1664 he schemed the plan of the *Journal des Scavans*; and the year following began to publish it under the name of Sieur de Heronville, which was that of his valet de chambre. But he played the critic so severely, that authors, surprised at the novelty of such attacks, retorted so powerfully, that M. de Sallo, unable to weather the storm, after he had published his third Journal, declined the undertaking, and turned it over to the abbé Gallois; who, without presuming to criticize, contented himself merely with giving titles, and making extracts. Such was the origin of literary journals, which afterwards sprang up in other countries under different titles; and the success of them, under judicious management, is a clear proof of their utility. M. de Sallo died in 1669.

SALLUSTIUS (Caius Crispus), a celebrated Roman historian, was born at Amiternum, a city of Italy, in the year of Rome 669, and before Christ 85. His education was liberal, and he made the best use of it. His Roman History in six books, from the death of Sylla to the conspiracy of Catiline, the great work from which he chiefly derived his glory among the antients, is unfortunately lost excepting a few fragments; but his two detached pieces of History which happily remain entire, are sufficient to justify the great encomiums he has received as a writer.—He has had the singular honour to be twice translated by a royal hand: first by our Elizabeth, according to Camden; and

Sallet
||
Sallustius.

Sallustius
||
Salmastius.

and secondly, by the present Infant of Spain, whose version of this elegant historian, lately printed in folio, is one of the most beautiful books that any country has produced since the invention of printing. No man has inveighed more sharply against the vices of his age than this historian; yet no man had less pretensions to virtue than he. His youth was spent in a most lewd and profligate manner; and his patrimony almost squandered away when he had scarcely taken possession of it. Marcus Varro, a writer of undoubted credit, relates, in a fragment preserved by Aulus Gellius, that Sallust was actually caught in bed with Fausta the daughter of Sylla, by Milo her husband; who scourged him very severely, and did not suffer him to depart till he had redeemed his liberty with a considerable sum. A. U. C. 694, he was made questor, and in 702 tribune of the people; in neither of which places is he allowed to have acquitted himself at all to his honour. By virtue of his questorship, he obtained an admission into the senate; but was expelled thence by the censors in 704, on account of his immoral and debauched way of life. In the year 705 Cæsar restored him to the dignity of a senator; and to introduce him into the house with a better grace, made him questor a second time. In the administration of this office he behaved himself very scandalously; exposed every thing to sale that he could find a purchaser for; and if we may believe the author of the invective, thought nothing wrong which he had a mind to do: *Nihil non venale habuerit, cujus aliquis emptor fuit, nihil non æquum et verum duxit, quod ipsi facere collibisset.* In the year 707, when the African war was at an end, he was made prætor for his services to Cæsar, and sent to Numidia. Here he acted the same part as Verres had done in Sicily; outrageously plundered the province; and returned with such immense riches to Rome, that he purchased a most magnificent building upon mount Quirinal, with those gardens which to this day retain the name of *Sallustian gardens*, besides his country house at Tivoli. How he spent the remaining part of his life, we have no account from ancient writers. Eusebius tells us, that he married Terentia, the divorced wife of Cicero; and that he died at the age of 50, in the year 710, which was about four years before the battle of Actium. Of the many things which he wrote, beside his Histories of the Catilinarian and Jugurthine wars, we have some orations or speeches, printed with his fragments.

SALLY-PORTS, in fortification, or *Postern-Gates*, as they are sometimes called, are those under-ground passages which lead from the inner works to the outward ones; such as from the higher flank to the lower, or to the tenailles, or the communication from the middle of the curtain to the ravelin. When they are made for men to go through only, they are made with steps at the entrance and going out. They are about 6 feet wide and 8½ feet high. There is also a gutter or shore made under the sally-ports, which are in the middle of the curtains, for the water which runs down the streets to pass into the ditch; but this can only be done when they are wet ditches. When sally-ports serve to carry guns through them for the out-works, instead of making them with steps, they must have a gradual slope, and be 8 feet wide.

SALMASIUS (Claudius), a French writer of un-

common abilities and immense erudition, descended from an ancient and noble family, and born at or near Semur in 1596. His mother, who was a Protestant, infused her notions of religion into him, and he at length converted his father: he settled at Leyden; and in 1650 paid a visit to Christina queen of Sweden, who is reported to have shown him extraordinary marks of regard. Upon the violent death of Charles I. of England, he was prevailed on by the royal family, then in exile, to write a defence of that king; which was answered by our famous Milton in 1651, in a work intitled *Defensio pro Populo Anglicano contra Claudii Salmastii Defensionem Regiam.* This book was read over all Europe; and conveyed such a proof of the writer's abilities, that he was respected even by those who hated his principles. Salmastius died in 1653; and some did not scruple to say, that Milton killed him by the acuteness of his reply. His works are numerous, and of various kinds; but the greatest monuments of his learning are, his *Notæ in Hystoria Augustæ Scriptores*, and his *Exercitationes Pliniane in Solinum.*

SALMO, the **SALMON**; a genus of the order of abdominales. The head is smooth, and furnished with teeth and a tongue; the rays of the gills are from four to ten; the back-fin is fat behind; and the belly-fins have many rays. There are 29 species; of which the most remarkable are,

1. The salar, or common salmon, is a northern fish, being unknown in the Mediterranean sea and other warm climates: it is found in France in some of the rivers that empty themselves into the ocean, and north as far as Greenland; they are also very common in Newfoundland, and the northern parts of North America. Salmon are taken in the rivers of Kamtschatka; but whether they are of the same species with the European kind, is not very certain. They are in several countries a great article of commerce, being cured different ways, by salting, pickling, and drying: there are stationary fisheries in Iceland, Norway, and the Baltic; but we believe nowhere greater than those at Colrairie in Ireland; and in Great Britain at Berwick, and in some of the rivers of Scotland. In the History of Cumberland, we are told that "they deposit their spawn even on the upper side of Pooley-bridge; but always in the stream of Eamont. At those times it is not an easy matter to drive them away by throwing stones at them. They will take a bait of roe, or small fish, while upon the rudd, or laying their spawn. We have never heard of a salmon or salmon smelt being seen in the lake. They go up the river Derwent in September, through the lake of Bassenthwaite, up the river which runs through Kewick into the vale of St John, where they deposit their spawn in the small streams and feeders of the lake. The young salmon are called *salmon smelts*, and go down to the sea with the first floods in May."

The salmon was known to the Romans, but not to the Greeks. Pliny speaks of it as a fish found in the rivers of Aquitaine: Ausonius enumerates it among those of the Mosel. The salmon is a fish that lives both in the salt and fresh waters; quitting the sea at certain seasons for the sake of depositing its spawn, in security, in the gravelly beds of rivers remote from their mouths. There are scarce any difficulties but what they will overcome, in order to arrive at places fit for their

Salmastius
Salmo.

Salmo.

their purpose: they will ascend rivers hundreds of miles, force themselves against the most rapid streams, and spring with amazing agility over cataracts of several feet in height. Salmon are frequently taken in the Rhine as high up as Basil; they gain the sources of the Lapland rivers in spite of their torrent-like currents, and surpass the perpendicular falls of Leixlip, Kennerth, and Pont Aberglaflyn. It may here be proper to contradict the vulgar error, of their taking their tail in their mouth when they attempt to leap; such as Mr Pennant saw, sprung up quite straight, and with a strong tremulous motion.

The salmon is a fish so generally known, that a very brief description will serve. The largest we ever heard of weighed 74 pounds. The colour of the back and sides are grey, sometimes spotted with black, sometimes plain: the covers of the gills are subject to the same variety; the belly silvery; the nose sharp-pointed; the end of the under jaw in the males often turns up in the form of a hook; sometimes this curvature is very considerable: it is said that they lose this hook when they return to the sea. The teeth are lodged in the jaws and on the tongue, and are slender, but very sharp; the tail is a little forked.

2. The trutta, or sea-trout, migrates like the true salmon up several of our rivers; spawns, and returns to the sea. That described by Mr Pennant was taken in the Tweed below Berwick, June 1769. The shape was more thick than the common trout; the weight three pounds two ounces. The irides silver; the head thick, smooth, and dusky, with a gloss of blue and green; the back of the same colour, which grows fainter towards the side-line. The back is plain, but the sides, as far as the lateral line, are marked with large distinct irregularly-shaped spots of black: the lateral line straight; the sides beneath the line, and the belly, are white. Tail broad, and even at the end. The dorsal fin had 12 rays; the pectoral 14; the ventral 9; the anal 10. The flesh when boiled is of a pale red, but well-flavoured.

3. The fario, or trout; the colours of which vary greatly in different waters, and in different seasons. Trouts differ also in size. One taken in Llynallet, Denbighshire, which is famous for an excellent kind, measured 17 inches, its depth three and three quarters, its weight one pound ten ounces; the head thick; the nose rather sharp; the upper jaw a little longer than the lower; both jaws, as well as the head, were of a pale brown, blotched with black; the teeth sharp and strong, disposed in the jaws, roof of the mouth, and tongue. The back was dusky; the sides tinged with a purplish bloom, marked with deep purple spots, mixed with black above and below the side-line, which was straight; the belly white. The first dorsal fin was spotted; the spurious fin brown, tipped with red; the pectoral, ventral, and anal fins, of a pale brown; the edges of the anal fin white; the tail very little forked when extended.—The stomachs of the common trouts are uncommonly thick and muscular. They feed on the shell-fish of lakes and rivers, as well as on small fish. They likewise take into their stomachs gravel or small stones, to assist in comminuting the testaceous parts of their food. The trouts of certain lakes in Ireland, such as those of the province of Galway and some others, are re-

Salmo.

markable for the great thickness of their stomachs, which, from some slight resemblance to the organs of digestion in birds, have been called *gizzards*; the Irish name the species that has them *gillaroo trouts*. These stomachs are sometimes served up to table under the former appellation. Trouts are most voracious fish, and afford excellent diversion to the angler. The passion for the sport of angling is so great in the neighbourhood of London, that the liberty of fishing in some of the streams in the adjacent counties is purchased at the rate of 10*l.* per annum. These fish shift their quarters to spawn; and, like salmon, make up towards the heads of rivers to deposit their roes. The under jaw of the trout is subject, at certain times, to the same curvature as that of the salmon.

"It is caught (say the editors of the History of Cumberland) in very great plenty at all seasons of the year; one weighing a pound and a half is an usual size, though some are caught of 4*lb.* weight. Five or six ounces is a common weight; the largest are commonly the best for the table, when they cut of a deep salmon colour. In the winter months great quantities are potted along with the charre, and sent to London, &c.—The angler, on a favourable day, here enjoys his diversion in higher perfection than in most places. A trout occasionally strays out of the Eamont into the lake, and *vice versa*, out of the lake into the river. They are easily distinguished by their spots; and it is observed, that a fish taken from its usual place is not in so good a condition as one of equal length taken on its own ground; hence it is probable, that they do not emigrate, except when diseased or spawning. Geld fish (those without spawn) are the firmest and best. They have been taken out of a solid piece of ice, in which they were frozen, as it were in a case, perfectly uninjured, after an imprisonment of several hours."

4. The species, called from its colour the *white*, migrates out of the sea into the river Esk in Cumberland, from July to September. When dressed, their flesh is red, and most delicious eating. They have, on their first appearance from the salt water, the *lerna salmones*, or salmon louse, adhering to them. They have both milt and spawn; but no fry has as yet been observed. This is the fish called by the Scots *phinnoc*. They never exceed a foot in length. The upper jaw is a little longer than the lower; in the first are two rows of teeth, in the last one: on the tongue are six teeth. The back is straight: the whole body of an elegant form: the lateral line is straight; colour, between that and the top of the back, dusky and silvery intermixed; beneath the line, of an exquisite whiteness; first dorsal fin spotted with black: tail black, and much forked.

5. The samlet is the least of the trout kind; is frequent in the Wye, in the upper part of the Severn, and the rivers that run into it, in the north of England, and in Wales. It is by several imagined to be the fry of the salmon; but Mr Pennant dissents from that opinion. See his *Brit. Zool.* III. 303.

This species has a general resemblance to the trout, therefore must be described comparatively. *1st*, The head is proportionably narrower, and the mouth less than that of the trout. *2^{dly}*, Their body is deeper. *3^{dly}*, They seldom exceed six or seven inches in length; at most, eight and a half. *4^{thly}*, The pectoral fins have generally

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generally but one large black spot, though sometimes a single small one attends it; whereas the pectoral fins of the trout are more numerous marked. 5thly, The spurious or fat fin on the back is never tipped with red; nor is the edge of the anal fin white. 6thly, The spots on the body are fewer, and not so bright: it is also marked from the back to the sides with six or seven large bluish bars; but this is not a certain character, as the same is sometimes found in young trouts. 7thly, The tail of the samlet is much more forked than that of the trout. These fish are very frequent in the rivers of Scotland, where they are called *parr*. They are also common in the Wye, where they are known by the name of *skirlings*, or *lasprings*.

6. The alpinus, or red charr (*umbla minor*, or case charr of Pennant), is an inhabitant of the lakes of the north, and of those of the mountainous parts of Europe. It affects clear and pure waters, and is very rarely known to wander into running streams, except into such whose bottom is similar to the neighbouring lake. It is found in vast abundance in the cold lakes on the summits of the Lapland Alps, and is almost the only fish that is met with in any plenty in those regions; where it would be wonderful how they subsisted, had not Providence supplied them with innumerable larvæ of the gnat kind: these are food to the fish, who in their turn are a support to the migratory Laplanders, in their summer voyages to the distant lake. In such excursions those vacant people find a luxurious and ready repast in these fish, which they dress and eat without the addition of sauces; for exercise and temperance render useless the inventions of epicurism. There are but few lakes in our island that produce this fish; and even those not in any abundance. It is found in Ullswater and Windermere in Westmoreland; in Llyn Quellyn, near the foot of Snowdon; and, before the discovery of the copper-mines, in those of Llynberris; but the mineral streams have entirely destroyed the fish in the last lakes. In Scotland it is found in Loch Inch, and other neighbouring lakes, and is said to go into the Spey to spawn.

"The largest and most beautiful we ever received (says Mr Pennant) were taken in Windermere, and were communicated by the Rev. Mr Farish of Carlisle, with an account of their natural history. He sent five specimens; two under the name of the *case charr*, male and female; another he called the *geld charr*, i. e. a charr which had not spawned the preceding season, and on that account is reckoned to be in the greatest perfection. The two others were inscribed, the *red charr*, the *silver* or *gild charr*, the *carpia lacus benaci*, RAI Syn. Pisc. 66. which last are in Westmoreland distinguished by the epithet *red*, by reason of the flesh assuming a higher colour than the other when dressed.

"The *umbla minor*, or case charr, spawns about Michaelmas, and chiefly in the river Brathy, which uniting with another called the *Rowthay*, about a quarter of a mile above the lake, they both fall into it together. The Brathy has a black rocky bottom; the bottom of the Rowthay is a bright sand, and into this the charr are never observed to enter. Some of them, however, spawn in the lake; but always in such parts of it which are stony, and resemble the channel of the Brathy. They are supposed to be in the highest per-

Salmo.

fection about May, and continue so all the summer; yet are rarely caught after April. When they are spawning in the river they will take a bait, but at no other time; being commonly taken, as well as the other species, in what they call *breast-nets*, which are in length about 24 fathoms, and about five where broadest.—The season which the other species spawn in is from the beginning of January to the end of March. They are never known to ascend the rivers, but always in those parts of the lake which are springy, where the bottom is smooth and sandy, and the water warmest. The fishermen judge of this warmth, by observing that the water seldom freezes in the places where they spawn except in intense frosts, and then the ice is thinner than in other parts of the lake. They are taken in greatest plenty from the end of September to the end of November; at other times they are hardly to be met with. This species is much more esteemed for the table than the other, and is very delicate when potted. The length of the red charr to the division in its tail was 12 inches; its biggest circumference almost 7. The first dorsal fin was five inches and three quarters from the tip of its nose, and consisted of 12 branched rays, the first of which was short, the fifth the longest; the fat fin was very small. Each of the five fish had double nostrils, and small teeth in the jaws, roof of the mouth, and on the tongue.—The jaws of the case-charr are perfectly even; on the contrary, those of the red-charr were unequal, the upper jaw being the broadest, and the teeth hung over the lower, as might be perceived on passing the finger over them.—The geld or barren charr was rather more slender than the others, as being without spawn. The back was of a glossy dusky blue; the sides silvery, mixed with blue, spotted with pale red; the sides of the belly were of a pale red, the bottom white. The tails of each bifurcated."

7. The thymallus, or grayling, haunts clear and rapid streams, and particularly those that flow through mountainous countries. It is found in the rivers of Derbyshire; in some of those of the north; in the Tame near Ludlow; in the Lug, and other streams near Leominster; and in the river near Christchurch, Hampshire. It is also very common in Lapland: the inhabitants make use of the guts of this fish instead of rennet, to make the cheese which they get from the milk of the rein-deer. It is a voracious fish, rises freely to the fly, and will very eagerly take a bait. It is a very swift swimmer, and disappears like the transient passage of a shadow, from whence we believe it derived the name of *umbra*.

Effugiensque oculos celeri levis umbra natatu. Aufon.
The *umbra* swift escapes the quickest eye.

Thymalus and *thymus* are names bestowed on it on account of the imaginary scent, compared by some to that of thyme; but we never could perceive any particular smell. It is a fish of an elegant form; less deep than that of a trout: the largest we ever heard of was taken near Ludlow, which was about half a yard long, and weighed four pounds six ounces; but this was a very rare instance. The irides are silvery, tinged with yellow: the teeth very minute, seated in the jaws and the roof of the mouth, but none on the tongue: the head is dusky; the covers of the gills of a glossy green: the back and sides of a fine silvery grey; but when the fish is just taken,

Salmon. taken, varied slightly with blue and gold: the side-line is straight: the scales are large, and the lower edges dusky, forming straight rows from head to tail: the tail is much forked.

8. The eperlanus, or smelt, inhabits the seas of the northern parts of Europe, and probably never is found as far south as the Mediterranean: the Seine is one of the French rivers which receive it; but whether it is found south of that, we have not at present authority to say. If we can depend on the observations of navigators, who generally have too much to think of to attend to the minutiae of natural history, these fish are taken in the Straits of Magellan, and of a most surprising size, some measuring 20 inches in length and 8 in circumference. They inhabit the seas that wash these islands the whole year, and never go very remote from shore except when they ascend the rivers. It is remarked in certain rivers, that they appear a long time before they spawn, being taken in great abundance in November, December, and January, in the Thames and Dec, but in others not till February; and in March and April they spawn; after which they all return to the salt water, and are not seen in the rivers till the next season. It has been observed that they never come into the Mersey as long as there is any snow-water in the river. These fish vary greatly in size; but the largest we ever heard of was 13 inches long, and weighed half a pound. They have a very particular scent, from whence is derived one of their English names, *smelt*, i. e. smell it. That of *sparking*, which is used in Wales and the north of England, is taken from the French *sperlan*. There is a wonderful disagreement in the opinion of people in respect to the scent of this fish: some assert it flavours of the violet; the Germans, for a very different reason, distinguish it by the elegant title of *Stinckfisch*. — Smelts are often sold in the streets of London split and dried. They are called *dried sparkings*; and are recommended as a relish to a glass of wine in the morning. It is a fish of a very beautiful form and colour; the head is transparent, and the skin in general so thin, that with a good microscope the blood may be observed to circulate. The irides are silvery; the pupil of a full black; the under jaw is the longest: in the front of the upper jaw are four large teeth; those in the sides of both are small; in the roof of the mouth are two rows of teeth; on the tongue two others of large teeth. The scales are small, and readily drop off: the tail consists of 19 rays, and is forked. The colour of the back is whitish, with a cast of green, beneath which it is varied with blue, and then succeeds a beautiful gloss of a silvery hue.

9. The lavaretus, or gwiniad, is an inhabitant of several of the lakes of the Alpine parts of Europe. It is found in those of Switzerland, Savoy, and Italy; of Norway, Sweden, Lapland, and Scotland; in those of Ireland, and of Cumberland; and in Wales, in that of Llyntegid, near Bala, in Merionethshire. It is the same with the ferra of the lake of Geneva; the schelly of Hulse-water; the pollen of Lough Neagh; and the vangis and juvengis of Loch Mabon. In Scotland there is a tradition that it was first introduced there by their beauteous but unfortunate queen, Mary Stuart; and as in her time the Scotch court was much Frenchified, it seems likely that the name was derived from the French

vandoise, a “dace;” to which a slight observer might be tempted to compare it from the whiteness of its scales. The British name *gwiniad*, or *whiting*, was bestowed upon it for the same reason. It is a gregarious fish, and approaches the shores in vast shoals in spring and in summer; which proves in many places a blessed relief to the poor of inland countries, in the same degree as the annual return of the herring is to those who inhabit the coasts. Between 7000 and 8000 have been taken at one draught. The gwiniad is a fish of an insipid taste, and must be eaten soon, for it will not keep long; those that choose to preserve them do it with salt. They die very soon after they are taken. Their spawning season in Llyntegid is in December. The largest gwiniad we ever heard of weighed between three and four pounds: the head is small, smooth, and of a dusky hue: the eyes very large; the pupil of a deep blue: the nose blunt at the end; the jaws of equal length: the mouth small and toothless: the branchiostegous rays nine: the covers of the gills silvery, powdered with black. The back is a little arched, and slightly carinated: the colour, as far as the lateral line, is glossed with deep blue and purple; but towards the lines assumes a silvery cast, tinged with gold; beneath which those colours entirely prevail. The tail is very much forked: the scales are large, and adhere close to the body.

SALMON, in ichthyology. See SALMO, n° 1.

SALMON-Fishery. See SALMON-FISHERY.

SALON, or SALOON, in architecture, a lofty, spacious sort of hall, vaulted at top, and usually comprehending two stories, with two ranges of windows.

The salon is a grand room in the middle of a building, or at the head of a gallery, &c. Its faces, or sides, are all to have a symmetry with each other; and as it usually takes up the height of two stories, its ceiling, Daviler observes, should be with a moderate sweep.

The salon is a state-room much used in the palaces in Italy; and from thence the mode came to us. Ambassadors, and other great visitors, are usually received in the salon.

It is sometimes built square, sometimes round or oval, sometimes octagonal, as at Marly, and sometimes in other forms.

SALONA, a sea-port town of Dalmatia, seated on a bay of the gulph of Venice. It was formerly a very considerable place, and its ruins show that it was 10 miles in circumference. It is 18 miles north of Spalatto, and subject to Venice. It is now a wretched village, preserving few distinguishable remains of its ancient splendor. Doubtless the two last ages have destroyed all that had escaped the barbarity of the northern nations that demolished it. In a valuable MS. relation of Dalmatia, written by the senator Giambattista Guistiniani, about the middle of the 16th century, there is a hint of what existed at that time. “The nobility, grandeur, and magnificence of the city of Salona, may be imagined from the vaults and arches of the wonderful theatre, which are seen at this day; from the vast stones of the finest marble, which lies scattered on, and buried in the fields; from the beautiful column of three pieces of marble, which is still standing in the place where they say the arsenal was, towards the sea-shore; and from the many arches of surprising beauty,

Salmon
||
Salona.

Fortis's
Travels into
Dalmatia.

Salonichi
||
Salfette.

supported by very high marble columns; the height of the arches is a stone-throw, and above them there was an aqueduct, which reached from Salona to Spalatro. There are to be seen many ruins and vestiges of large palaces, and many ancient epitaphs may be read on fine marble stones; but the earth, which is increased, has buried the most ancient stones, and the most valuable things." E. Long. 17. 29. N. Lat. 44. 10.

SALONICHI, formerly called *Thessalonica*, a seaport town of Turkey in Europe, and capital of Macedonia, with an archbishop's see. It is ancient, large, populous, and rich, being about 10 miles in circumference. It is a place of great trade, carried on principally by the Greek Christians and Jews, the former of which have 30 churches, and the latter as many synagogues; the Turks also have a few mosques. It is surrounded with walls, flanked with towers, and defended on the land-side by a citadel, and near the harbour with three forts. It was taken from the Venetians by the Turks in 1431. The principal merchandize is silk. It is seated at the bottom of a gulph of the same name, partly on the top, and partly on the side of a hill, near the river Vardar. E. Long. 23. 13. N. Lat. 40. 41.

SALSES, a very strong castle of France, in Roussillon, on the confines of Languedoc. It was taken from the Spaniards by the French in 1642; and is seated on a lake of the same name, among mountains, 10 miles north of Perignan. E. Long. 3. 0. N. Lat. 43. 35.

SALSETTE, an island of the East Indies, adjacent to Bombay, from which it is in one place divided only by a narrow pass fordable at low water. It is about 26 miles long, and eight or nine broad. The soil is rich, and by proper cultivation capable of producing any thing that will grow in tropical climates. It is everywhere well watered, and when in the possession of the Portuguese furnished such quantities of rice, that it was called the *Granary of Goa*. It abounds also in all kinds of provisions, and has great plenty of game, both of the four-footed and feathered kind. It has pretty high mountains; and there is a tradition that the whole was thrown up from the bottom of the sea: in confirmation of which it is said, that on the top of the highest hill there was found, some years ago, a stone anchor, such as was anciently used by the inhabitants of that country. Here we meet with the ruins of a place called *Canara*, where there are excavations of rocks, supposed to be contemporary with those of **ELEPHANTA**. They are much more numerous, but not comparable to the former either in bigness or workmanship.

The island of Salfette lately formed part of the Portuguese dominions in India. It ought to have been ceded to the English along with Bombay, as part of the dower of Catharine of Lisbon, espoused to Charles II. The fulfilment of this article, however, being evaded, the island remained in possession of the Portuguese; and notwithstanding the little care they took of it, the revenue of it was valued at 60,000 l. Such was the negligence of the Portuguese government, that they took no care to fortify it against the attacks of the Marattas, from whose dominions Salfette was only separated by a very narrow pass fordable at low water. Here they had only a miserable redoubt of no consequence, till, on the appearance of an approaching

war with the Marattas, they began to build another, which indeed would have answered the purpose of protecting the island, provided the Marattas had allowed them to finish it. This, however, was not their intention. They allowed them indeed to go quietly on with their works, till they saw them almost completed, when they came and took possession of them. The Marattas thus became dangerous neighbours to the English at Bombay, until it was ceded to the latter by the treaty concluded with these people in 1780. E. Long. 72. 15. N. Lat. 19. 0.

SALSOLA, **GLASS-WORT**: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 12th order, *Holoracea*. The calyx is pentaphyllous; there is no corolla; the capsule is monospermous, with a screwed feed.

The species are, 1. The kali, which grows naturally in the salt marshes in divers parts of England. It is an annual plant, which rises above five or six inches high, sending out many side branches, which spread on every side, garnished with short awl-shaped leaves; which are fleshy, and terminate in acute spines. The flowers are produced from the side of the branches, to which they sit close, and are encompassed by short prickly leaves; they are small, and of an herbaceous colour. The seeds are wrapped up in the empalement of the flower, and ripen in autumn; soon after which the plant decays. 2. The tragus grows naturally on the sandy shores of the south of France, Spain, and Italy. This is also an annual plant, which sends out many diffused stalks, garnished with linear leaves an inch long, ending with sharp spines. The flowers come out from the side of the stalks in the same manner as those of the former; their empalements are blunt, and not so closely encompassed with leaves as those of the other. 3. The soda, rises with herbaceous stalks near three feet high, spreading wide. The leaves on the principal stalk, and those on the lower part of the branches, are long, slender, and have no spines; those on the upper part of the stalk and branches are slender, short, and crooked. At the base of the leaves are produced the flowers, which are small, and hardly perceptible; the empalement of the flower afterwards encompasses the capsule, which contains one cochleated seed. 4. The *vermiculata* grows naturally in Spain. This hath shrubby perennial stalks, which rise three or four feet high, sending out many side-branches, garnished with fleshy, oval, acute-pointed leaves, coming out in clusters from the side of the branches; they are hoary, and have stiff prickles. The flowers are produced from between the leaves toward the ends of the branches; they are so small as scarce to be discerned, unless they are closely viewed. The seeds are like those of the other kinds. 5. The *roseacea* grows naturally in Tartary. This is an annual plant, whose stalks are herbaceous, and seldom rise more than five or six inches high. The leaves are awl-shaped, ending in acute points; the empalements of the flowers spread open: the flowers are small, and of a rose colour, but soon fade: the seeds are like those of the other sorts.

All the sorts of glass-wort are sometimes promiscuously used for making the sal kali, but it is the third sort which is esteemed best for this purpose. The manner of making it is as follows: Having dug a trench

near

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near the sea, they place laths across it, on which they lay the herb in heaps, and, having made a fire below, the liquor, which runs out of the herbs, drops to the bottom, which at length thickening, becomes *sal kali*, which is partly of a black, and partly of an ash-colour, very sharp and corrosive, and of a saltish taste. This, when thoroughly hardened, becomes like a stone; and in that state is transported to different countries for making of glass.

SALT, one of the great divisions of natural bodies, but which has never yet been accurately defined. The characteristic marks of salt have usually been reckoned its power of affecting the organs of taste, and being soluble in water. But this will not distinguish salt from quicklime, which also affects the sense of taste, and dissolves in water; yet quicklime has been universally reckoned an earth, and not a salt. The only distinguishing property of salts, therefore, is their crystallization in water: however, this does not belong to all salts; for the nitrous and marine acids, though allowed on all hands to be salts, are yet incapable of crystallization, at least by any method hitherto known. Several of the imperfect neutral salts also, such as combinations of the nitrous, muriatic, and vegetable acids, with some kinds of earths, crystallize with very great difficulty. However, by the addition of spirit of wine, or some other substances which absorb part of the water, keeping the liquor in a warm place, &c. all of them may be reduced to crystals of one kind or other. Salt, therefore, may be defined a substance affecting the organs of taste, soluble in water, and capable of crystallization, either by itself or in conjunction with some other body; and, universally, every salt capable of being reduced into a solid form, is also capable of crystallization *per se*. Thus the class of saline bodies will be sufficiently distinguished from all others: for quicklime, though soluble in water, cannot be crystallized without addition either of fixed air or some other acid; yet it is most commonly found in a solid state. The precious stones, basaltes, &c. though supposed to be formed by crystallization, are nevertheless distinguished from salts by their insipidity and insolubility in water.

But acids and alkalis, and combinations of both, when in a concrete form, are salts, and of the purest sort. Hence we conclude, that the bodies, to which the name of *salts* more properly belongs, are the concretions of those substances; which are accordingly called *acid salts*, *alkaline salts*, and *neutral salts*. These last are combinations of acid and alkaline salts, in such proportion as to render the compounds neither sour nor alkaline to the taste. This proportionate combination is called *saturation*: thus the common kitchen-salt is a neutral salt, composed of marine acid and mineral alkali combined together to the point of saturation. The appellation of *neutral salts* is also extended to denote all those combinations of acids, and any other substance with which they can unite, so as to lose, wholly or in great measure, their acid properties.

But altho' this general definition of salts is commonly received, yet there are many writers, especially mineralogists, who confine the denomination of *salts* in the manner we first mentioned, viz. to those substances only which, besides the general properties of salts, have the power of crystallizing; that is, of arranging their particles so as to form regularly-shaped bodies, called *crystals*, when the water superfluous to their concrete existence has been evaporated.

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The ancient chemists asserted that salt was one of the component principles of metals, and indeed of every thing else: a doctrine which was attempted to be revived by the late Dr Price of Guildford, who thought it probable that the basis of all imperfect metals is saline, because Mr Scheele had lately extracted a real acid from arsenic, which, by the addition of a proper quantity of phlogiston, becomes a ferri-metal. But here the argument will hold only with regard to the ferri-metals, all of which are volatile in the fire, and therefore may possibly have a volatile basis, such as all acids are in some degree: but some of the imperfect metals, as tin and copper, may be reduced to a calx equally refractory with quicklime itself; and even zinc, though volatile in close vessels, is yet capable of being reduced to an exceedingly refractory calx called *flowers of zinc*; and it is to be observed, that the regulus of arsenic, even in its most perfect metalline form, cannot be calcined like other metals. The common opinion that metals have an earthy, rather than a saline basis, seems to be well founded.

The origin of salts is very much, or rather totally, unknown. Some eminent chemists, particularly Stahl, have supposed that the number of substances truly and essentially saline is very small; nay, that there is but one saline principle in nature. This principle they suppose to be the vitriolic acid, as being the most simple and indestructible of them all. Stahl delivers his opinion on this subject in the following words: "That he considers the vitriolic acid as the only substance essentially saline; as the only saline principle which, by uniting more or less intimately with other substances that are not saline, is capable of forming an innumerable multitude of other saline matters, which nature and art shew us; and, secondly, that this saline principle is a secondary principle, composed only by the intimate union of two primary principles, water and earth.

In support of this theory Mr Macquer argues in the following manner: "Every true chemist will easily discover that this grand idea is capable of comprehending by its generality, and of connecting together, all the phenomena exhibited by saline substances. But we must at the same time acknowledge, that when we examine the proofs upon which it is founded, although it has a great appearance of truth by its consistency with the principles of chemistry, and with many phenomena, yet it is not supported by a sufficient number of facts and experiments to ascertain its truth. We might here examine what degree of probability ought to be granted to this theory of salts; but this could not be properly accomplished, without entering into long details, and penetrating into the depths of chemistry. We are therefore obliged to relate only what is most essential to be known concerning this grand hypothesis. We may perceive at once, that the former of those propositions, upon which is founded the theory which we mentioned, cannot be demonstrated, unless it be previously proved that every saline matter, excepting pure vitriolic acid, is nothing but this same acid differently modified, the primary properties of which are more or less altered or disguised by the union contracted with other substances. But we confess, that chemists are not capable of proving decisively this opinion; which, however, will appear very probable from the following reflections.

"First, Of all saline matters known, none is so strong,

Salt. so unalterable, so eminently possessed of saline properties, as vitriolic acid."

The vitriolic acid, when combined with other substances, forms vitriolic salts, which vary both in specific names and properties, according to the various substances with which the acid is combined. Thus the vitriolic acid, combined with mineral alkali, forms the salt called *Glauber's salt*, or *sal mirabile*. When it is combined with calcareous earths, it forms vitriolic salts with bases of calcareous earth, which are commonly called *selenites*. When combined with argillaceous earths, it forms alum. When combined with metals, it forms vitriolic salts with metallic bases, to which the general name *vitriols* is given; and in commerce are commonly called *copperas*. The vitriols principally used are, 1. The martial vitriol; called also *English vitriol*, *green vitriol*, or *green copperas*, which is a combination of vitriolic acid with iron. 2. The vitriol of copper, called also *blue vitriol*, *Cyprian vitriol*, or *blue copperas*; which is a combination of vitriolic acid and copper. 3. The vitriol of zinc, called also *white copperas*, and *Goffar vitriol*, which is a combination of the same acid with a femimetal called *zinc*. It is a property peculiar to the vitriolic acid, that all the combinations of it, with those substances with which it can form neutral salts, are susceptible of crystallization.

"Secondly, Amongst the other saline substances, those which appear most active and most simple, as nitrous and marine acids, are at the same time those whose properties most resemble the properties of vitriolic acid."

The nitrous acid, combined with all the substances with which it can mix, forms saline substances, in general called *nitrous salts*; specifying each particular salt by the name of the substance united to the acid. Thus nitrous acid, with fixed vegetable alkali, forms a saline substance called *nitre*, or *saltpetre*. With mineral alkali, forms cubic or quadrangular nitre. When mixed with metallic substances, forms metallic nitres, which are specified *nitre of gold*; *nitre of silver*, or *lunar nitre*, *lunar crystals*, and *crystals of silver*, *nitrous crystals of mercury*; *nitre of copper*, &c.

"Thirdly, We may give to vitriolic acid many of the characteristic properties of nitrous acid, by combining it in a certain manner with the inflammable principle, as we see in the volatile sulphureous acid; and even, according to an experiment of Mr Piech, related in a memoir concerning the origin of nitre, which gained the prize of the academy of Berlin, vitriolic acid, mixed with vegetable and animal matters susceptible of fermentation, is really transformed into a nitrous acid by the putrefaction of these matters. See CHEMISTRY, n° 720.

"Fourthly, The marine acid, although its principles are less known than those of the nitrous acid, may be approximated to the character of vitriolic and nitrous acids by certain methods. This acid, after it has been treated with tin and other metallic matters, is capable of forming either with spirit of wine, as vitriolic acid does, which it cannot do in its natural state; and when iron is dissolved in it, it seems to be approximated to the nature of nitrous acid. Reciprocally,

the approximation of vitriolic acid to the character of marine acid seems not impossible. Having once distilled very pure vitriolic acid upon a considerable quantity of white arsenic, I was struck with a strong smell like that of marine acid, which was not either that of arsenic or of vitriolic acid; for this has no smell when it is pure."

The marine acid, combined with various matters, forms marine salts, or simply salts, specified by the names of their particular bases. The sea-salt, or kitchen salt, and sal gem, are combinations of marine acid and mineral alkali. When this acid is combined with volatile alkali, it forms sal ammoniac (A.) With metals it forms metallic salts, called *salt of gold*, *salt of copper*, &c. according to the various metals combined with the acid. The salt of silver is also called *luna cornea*; the salt of lead is often called *plumbum corneum*; and the salts of antimony, and of arsenic, are known by the names of *butter of antimony*, and *butter of arsenic*.

"Fifthly, Oily vegetable acids become so much stronger, and more similar to vitriolic acid, as they are more perfectly deprived of their oily principle, by combining them with alkalis, earths, or metals; and afterwards by separating them from these substances by distillation, and especially by frequently repeating these operations. They might perhaps be reduced to a pure vitriolic acid, by continuing sufficiently this method: and reciprocally, vitriolic and nitrous acids, weakened by water, and treated with much oily matters, or still better with spirit of wine, acquire the characters of vegetable acids. We may see a remarkable instance of this in Mr Pott's dissertation *De acido nitri vinoso*. [The most remarkable experiment in which is related under the article CHEMISTRY, n° 781.]

"Sixthly, The properties of fixed alkalis seem to be very different from those of acids in general, and consequently of vitriolic acid. Yet if we consider that a large quantity of earth enters their composition; that much of it may be separated by repeated solutions and calcinations; and also, that by depriving these saline substances of their earthy principles, they become less fixed, more deliquescent, and, in a word, more similar to vitriolic acid in this respect;—we shall not think it improbable, that fixed alkalis owe their saline properties to a saline principle, of the nature of vitriolic acid, but much disguised by the quantity of earth, and probably of inflammable principle, to which it is united in these combinations. The properties of volatile alkalis, and the transformation of fixed alkali, or of its materials, into volatile alkali in putrefaction, and in several distillations, seem to show sufficiently that they are matters essentially saline, as fixed alkalis are, and that their volatility which distinguishes them proceeds from their containing a less quantity of earth, but more attenuated, and a portion of very subtle and volatile oil, which enters their composition. [For some other particulars relating to the transmutation of salts, see CHEMISTRY, n° 784.]

"Besides these principal facts, there are many others, too numerous to be even slightly mentioned here; they may be found scattered in the works of chemists, particularly of Stahl. But persons who would collect and compare all the experiments relating to this subject,

(A) Ammoniacal salts is also a general name given to all neutral salts composed of an acid saturated with a volatile alkali.

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subject, ought to know, that many of them are not sufficiently ascertained; and that perhaps a greater number of them have not been sufficiently prosecuted, and are, properly speaking, only begun. We must even acknowledge, that many of those experiments which we have mentioned have not been sufficiently prosecuted.

"The second fundamental proposition of the theory of salts, namely, 'That the vitriolic acid is compounded of only the aqueous and earthy principles,' is, like the first, supported by many facts which give it a degree of probability, but which do not amount to a complete demonstration. This proposition may be supported by the following considerations.

"First, Experience constantly shows, that the properties of compound bodies are always the result of those of the component parts of these bodies, or rather they are the properties of these component bodies modified by one another.

"Thus, if a body be composed of two principles, one of which is fixed and the other volatile, it will have a less degree of fixity than the former, and a less volatility than the latter. If it be composed of two principles, one of which is specifically heavier than the other, its specific gravity will be greater than that of one of them, and less than that of the other. The same observation is applicable to all the other essential properties, excepting those which destroy each other; as, for instance, the tendency to combination, or the dissolving power; for these latter properties are weakened so much more in the compounds as their principles are more strongly united, and in more just proportion.

"We observe, nevertheless, that the properties of compound bodies are not always exactly intermediate betwixt the properties of the component bodies; for, to produce this mean, the quantities of each of the component parts must be equal, which is the case in few or no compounds.

"Besides, some particular circumstances in the manner in which the principles unite with one another, contribute more or less to alter the result of the combined properties: for instance, experience shows, that when several bodies, particularly metals, are united together, the specific gravities of which are well known, the alloy formed by such union has not the precise specific gravity which ought to result from the proportion of the alloyed substances; but that in some alloys it is greater and in others less. But we are certain, on the other side, that these differences are too inconsiderable to prevent our distinguishing the properties of the principles in the compounds which they form, especially when they have very different properties.

"These things being premised, when we examine well the properties of vitriolic acid, we shall easily find that they partake of the properties of the aqueous and of the earthy principles.

"First, When this acid is as pure as we can have it, it is like the purest water and the purest vitrifiable earths, free from colour or smell, and perfectly transparent.

"Secondly, Although we cannot deprive the vitriolic acid of all the water superabundant to its saline essence, and therefore its precise specific gravity has not been determined, we know that when it is well

concentrated, it is more than twice as heavy as pure water, and much less heavy than any earthy substance.

"Thirdly, This acid is much less fixed than any pure earth, since, however well it may be concentrated, it may always be entirely distilled; for which purpose a much stronger degree of heat is requisite than for the distillation of pure water.

"Fourthly, We do not know the degree of solidity of vitriolic acid, or the adhesion of aggregation, which its integrant parts have one to another, because for this purpose the vitriolic acid ought to be deprived of all superabundant water: but if we judge of it by the solid consistence of this acid when highly concentrated, as we see from the vitriolic acid called *glacial*, the integrant parts of this acid seem susceptible of a much stronger adhesion than those of pure water; but much less than those of earth, as we see from the instance of hard stones.

"Fifthly, The union which this acid contracts with water and with earths, shows that these substances enter into its composition; for we know, that in general compounds are disposed to unite superabundantly with the principles which compose them. All these properties of vitriolic acid, which so sensibly partake, and much more than any other acid, of the properties of earth and of water, are sufficient to induce us to believe that it is composed of these two principles; but it has one very eminent property, which is common with it to neither water nor pure earth, which is, its violent and corrosive taste. This property is sufficient to raise doubts, if we could not explain it from principles, which seem certain and general, relating to the combination of bodies.

"We observe, then, concerning the property now in question, that is, of taste in general, that it can only be considered as an irritation made upon the organs of taste by sapid bodies; and if we reflect attentively upon it, we shall be convinced, that no substance that is not impressed by some impulse can irritate or agitate our sensible organs, but by a peculiar force of its integrant parts, or by their tendency to combination; that is, by their dissolving power. According to this notion, the taste of bodies, or the impression made upon our sensible organs by their tendency to combination, or by their dissolving power, are the same property; and we see accordingly, that every solvent has a taste, which is so much more strong as its dissolving power is greater; that those whose taste is so violent that it amounts to acrimony, corrosion, and causticity, when applied to any other of the sensible parts of our body besides the organs of taste, excite in them itching and pain.

"This being premised, the question is, How earth, in which we perceive no taste nor dissolving power, and water, which has but a very weak dissolving power, and little or no taste, should form by their combination a substance, such as the vitriolic acid is, powerfully corrosive and solvent?

"To conceive this, let us consider, first, that every part of matter has a power by which it combines, or tends to combine, with other parts of matter. Secondly, that this force, the effects of which are perceptible, in chemical operations, only among the very small molecules, or the integrant and constituent parts of bodies, seems proportionable to the density or specific gravity of these parts. Thirdly, that this same force is limited

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in every integrant molecule of matter: that if we consider this force as not satisfied, and consequently as a simple tendency to combination, it is the greatest possible in an integrant molecule of matter perfectly insulated, or attached to nothing; and is the smallest possible, or none, when it is satisfied by its intimate combination with other parts capable of exhausting all its action; its tendency being then changed into adhesion.

"Hence we may infer, that the integrant parts of the earthy principle have essentially, and like all the other parts of matter, a force of tendency to union, or of cohesion in union, according to their condition; that as this earthy principle has a much more considerable density or specific gravity than all other simple bodies that we know, we may probably presume that its primary integrant molecules have a more considerable force of tendency to union, in the same proportion, than the integrant parts of other principles; that consequently when they cohere together, and form an aggregate, their aggregation must also be stronger and firmer than that of any other body. Accordingly we see, that the purest earthy substances, whose parts are united and form masses, such as, for instance, the stones called *vitrifable*, are the hardest bodies in nature. We are no less certain, that as the tendency of the parts of matter to unite is so much less evident as it is more exhausted and satisfied in the aggregation, the parts of the earthy principle being capable of exhausting mutually all their tendency to union, we may thence infer, that every sensible mass of pure earthy matter must appear deprived of any dissolving power; of taste; in a word, of tendency to union from the firmness of its aggregation. But we may also infer, that when these primary integrant parts of the earthy principle are not united together in aggregation, then, resuming all the activity and tendency to union which are essential to them, they must be the strongest and most powerful of all solvents.

"These being premised, if we suppose again, with Stahl and the best chemists, that, in the combination of the saline principle or of vitriolic acid, the parts of the earthy principle are united, not with each other, as in the earthy aggregation, but with the primary parts of the aqueous principle, each to each, we may then easily conceive, that the primary integrant parts of the water, having essentially much less tendency to combination than those of earth, the tendency of these latter to union will not be exhausted, but satisfied only partly, by their combination with the former; and that consequently a compound must result, the integrant parts of which will have a strong dissolving power, as vitriolic acid is.

"We may see from hence how much mistaken chemists are, who, considering earth only in its aggregation, or rather not attending to this state, and not distinguishing it from that state in which the parts of this same earth are so separated from each other by the interposition of another body, that they cannot touch or cohere together, have considered the earthy principle as a substance without force or action, and have very improperly called that a *passive principle*, which of all other is the strongest, most active, and most powerful.

"However this general theory of salts may conform with the most important phenomena of chemistry, we must acknowledge, that it can only be proposed as a systematical opinion, till it be evidently demonstrated

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by the decisive means employed in chemical demonstrations, namely, by decomposition and recomposition: thus, if we could reduce vitriolic acid to earth and water, and make that acid by combining together these two principles, this theory would cease to be a system, and would become a demonstrated truth. But we must confess, that this theory is less supported by experiment than by argument, from the many difficulties that are inevitable in such inquiries. For on one side, we know that the simpler bodies are, the more difficult is their decomposition; and on the other side, the stronger the aggregation is, the greater is the difficulty of making it enter into a new combination. Thus, as vitriolic acid is very simple, since it is a compound of the first order, it ought strongly to resist decomposition; and as the aggregation of pure earth is the firmest that we know, it cannot easily be made to enter as a principle into a new combination with water to form a saline matter. The following are the principal experiments which have been made relative to the subject.

"First, We seem to be certain, from many proofs, that all saline substances, comprehending those that contain vitriolic acid, as vitriolated tartar, Glauber's salt, and other vitriolated salts which are sufficiently fixed to support a perfect drying, or rather calcination, being alternately dissolved, dried, and calcined a number of times, are more and more diminished in quantity, and that earth and water are separated from them each operation. But alkaline salts appear to be still more susceptible than any other saline matter of this kind of decomposition.

"Secondly, When nitre is burnt in close vessels, so that we may retain not only all that remains fixed after this burning, but also what exhales in vapours, as in the experiment of the clyffus of nitre, we have a proof which seems decisive, that the mineral acid of this salt, which is not very far from the simplicity of vitriolic acid, is totally decomposed and reduced into earth and water. For if we examine the fixed residuum in the retort, we find that it is only the alkali that was contained in the nitre, charged with a superabundant earth, which is separable from it by solution and filtration. And if the liquor in the receiver, formed by the vapours condensed there, be examined, which ought to be nitrous acid; if this acid had not been destroyed, we find, that, so far from being acid, it is only pure water, sometimes even charged with a little fixed alkali, which had been raised by the force of the detonation. Thus nitrous acid is made to disappear in this experiment, and in its place we find only earth and water.

"Thirdly, The phenomena of limestone, which by calcination and extinction in water acquires saline properties that it had not before its attenuation by fire and its combination with water; and also the experiment of Beccher, who asserts, that if a vitrifiable stone be alternately made red-hot, and extinguished in water a number of times, it may be so attenuated that it shall be like a saline gelatinous matter; these, I say, show that saline matters are actually formed by the intimate combination of the very attenuated parts of earth with those of water. We find in the writings of Beccher and Stahl, and particularly in the *Specimen Beccherianum* of the latter author, many other observations and experiments tending to prove the same proposition; but we must confess, that none of the experiments we have mentioned, excepting that of the decomposition of

Salt of nitrous acid by burning, are absolutely decisive; principally because they have not been sufficiently repeated or prosecuted, nor carefully enough examined in all their circumstances."

On this theory it is obvious to remark, that our author has omitted to mention the most active part of the composition of salts, namely elementary fire. Of this both acids and alkalis undoubtedly contain a great quantity in a very active state, as is evident from their performing the effects of fire when applied to certain substances; nay, from their actually bursting into flame when mixed with some kinds of oils. For an explanation of the reason of which, see HEAT, and the various detached articles relative to that subject. Whatever doubts we may have of the power of mere water combined with mere earth to affect the organs of taste, we can have none that the element of fire is capable of so doing; and from the very tasting of these substances, we may be assured, that whatever gives that peculiar sensation to the tongue which we call *acid* or *alkaline*, gives also the other properties of the salt, whatever they may be. In alkalis, no doubt the greatest part of the composition is earth; but from what has been said on QUICKLIME, it appears, that mere earth, by the artificial action of fire alone, acquires all the properties of salt, that of crystallizing *per se* excepted: it seems probable therefore, that, in the more perfect operations of nature, the same materials are used; only the proportions are such, that the substance is more soluble, and its causticity greater, than even quicklime itself. With regard to acids, the earthy parts seem to be fewer; and in all probability the most considerable ingredient in their composition is water: but in what manner this element is united to that of fire so as to produce the peculiar phenomena of acids, cannot be explained.

The acid of tartar (the purest part of which, or that saline substance which first crystallizes by evaporation in the vessels in which it is purified, is called *cream of tartar*), and also all other concrete vegetable acids analogous to it, when mixed with various other substances, form compounds, generally called *tartareous salts*, or *soluble tartars*, because they are dissolved by water more easily than the acid of tartar itself. Acetous salts, that is, all salts containing the acid of vinegar, are also combined with various bases, and form saline substances of different names; the principal of which are, the acetous salt of copper, called *crystals of Venus*, or *of verdigris*, by the chemists, and *distilled* or *crystallized verdigris* in commerce; the acetous salt of lead, commonly called *salt* or *sugar of lead*; and the acetous mercurial salts. Sugar is an essential vegetable salt, of a pleasant sweet taste, containing a vegetable acid combined with earth and oil.

Potash is a fixed vegetable alkali, extracted from the ashes of wood. Concrete volatile alkalis are generally called *volatile salts*; although this name is sometimes also given to the volatile salt of amber, which is not an alkaline but an acid salt. Borax is a neutral saline matter, whose origin, whether animal or vegetable, is as yet unknown, its components being not sufficiently examined. It is soluble in water, and very nearly as crystallizable as alum. When borax is exposed to the fire, it first bubbles and foams very much, but afterwards it melts into a clear glass. When acids are combined with the alkaline part of borax, a substance of a singular na-

ture is separated from it, commonly called *sedative salt*. Although this substance acts as an acid in borax, by saturating its alkali, yet it has no acid taste, nor doth it turn the tincture of heliotropium to a red, as other acids do. It is the property of borax to facilitate considerably the fusion of metals, of earths, and other minerals. Some species of stones and earths cannot be vitrified at all, except they are mixed with borax. For this property borax is commonly used as a flux (that is, a substance which facilitates the fusion of other bodies) in various manufactories; but especially in soldering metals, and in assaying ores. Phosphoric salts are combinations of alkaline, earthy, and metallic substances with the acid obtained from the phosphorus of urine. Besides the above-mentioned salts, there are several others to be met with in the writings of the chemical and medical authors; but, as they are of little consequence, we shall omit any account of them.

Some new neutral salts have been formed by the dephlogisticated marine, or, according to the new theory, the oxygenated muriatic acid.—This was first taken notice of by M. Berthollet, and the discovery is thus illustrated by Dr Dollfus, in Crell's Annals for the year 1788, vol. i. p. 319.

"In the month of November 1786 (says he), whilst I was preparing to translate Higgins's experiments respecting the acetous acid, I found the following amongst the numerous observations which that work contains, p. 180. 'The acid elastic fluid which issues, when two pounds of manganese are mixed and distilled with two or three of ordinary spirit of sea-salt, may all, except a small portion of phlogistic air, be condensed in a solution of fixed vegetable alkali; and the solution thus impregnated yields a considerable quantity of nitre, which crystallizes in the ordinary form, and detonates on red-hot coals. The solution at the same time yields regenerated sea-salt.' The part of this proposition which relates to the form of the crystals and to their detonation is sufficiently plain; but that I might have a still more complete conviction on the subject, I repeated the experiment upon a small scale.

"For this purpose I put into a vial an ounce of pulverised oxyd (~~oxide~~) of manganese with an ounce and a half of muriatic acid, and by means of a bent tube I directed the vapour into another vial, which contained a solution of vegetable alkali. I then distilled by the gentle heat of a small lamp. From the vial containing the alkali went a second tube, for the purpose of carrying off the air which I hoped to obtain by this process.

"As soon as the oxygenated muriatic acid appeared, some air escaped through the tube, which showed all the properties of common atmospheric air; and as soon as all the air which the vials contained previous to the distillation had been expelled, no more such air appeared. The vapours of the oxygenated muriatic acid were absorbed by the solution of vegetable alkali, without the extrication of the smallest portion of carbonic acid (fixed air) from the alkali. As fast as the alkali, which adhered to the sides of the glass, absorbed the acid vapour, prismatic crystals appeared; and many more, which I obtained a few hours afterwards, were formed in the liquor. Although these crystals detonated in the fire, they had a taste very different from that of nitre. It was extremely pungent, and was rendered still

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more intolerable by the suffocating odour of the nitromuriatic acid (*aqua regia*). In order to complete the crystallization, I evaporated in the same vial the remaining liquor. As soon as the vapour appeared, a quantity of carbonic acid was disengaged, and afterwards some atmospheric air. The salt which I obtained by crystallization after the evaporation was a true muriat of potash, which did not detonate in the fire. Probably Mr Higgins performed the operation in the way I have described; but he was too hasty in concluding this salt to be nitre merely because it detonated. I gave an account of this experiment to Mr Kirwan at the time, and soon after communicated it to Professor Gadolin, who offered to assist me in repeating the experiment.

"We agreed to employ crystallized carbonat of soda (mild mineral alkali); and the following was the result of our experiment. We dissolved some of this carbonat in a large quantity of water, and we employed two or three hours a day, for several successive days, in introducing into the solution as much oxygenated muriatic gas as was sufficient entirely to saturate it; we then poured the saline liquor into a glass basin, and left it covered over to evaporate spontaneously. After some time a number of prismatic crystals were formed, which detonated in the fire like nitre. They occasioned a brown precipitate from a solution of iron in sulphuric or vitriolic acid; and mixed with sal ammoniac, they gave out a strong ammoniacal odour, accompanied with some effervescence, which was to be attributed to the extrication of fixed air during the mixture. The remaining part of the liquor evaporated again, produced fresh crystals, which, though they certainly had a faint smell of oxygenated muriatic acid, in reality consisted partly of muriat of soda (common salt), and partly of uncombined soda; for they did not detonate, and they precipitated iron of a light green colour. The liquor which appeared above these crystals, however, had not yet entirely lost the smell of the oxygenated muriatic acid. Since this, M. Gadolin has made the following experiment, which he communicated to me. He put two drams of magnesia, saturated with carbonic acid, into an ounce and a half of water, into which he introduced during several hours a quantity of oxygenated muriatic gas. The water evidently acquired the odour of the oxygenated muriatic acid. He filtered the liquor, and washed and dried that part of the magnesia which had not been dissolved, and which weighed one dram 4-5ths, so that the water was found to have dissolved 1-5th of a dram. As soon as the liquor began to boil, a strong effervescence was occasioned, some oxygenated muriatic gas was disengaged, and a small quantity of carbonat of magnesia was precipitated. When the liquor had become cool, it was filtered, that it might be separated from the precipitated powder. It had still the same odour; and on being again heated, an effervescence similar to the first took place, and a fresh quantity of carbonat of magnesia was separated. This phenomenon appeared every time M. Gadolin boiled the liquor after its cooling, till at last he had evaporated it to dryness, when there still remained a small quantity of magnesia. Hence M. Gadolin concludes, that water, oxygenated muriatic acid, and carbonat of magnesia, form a combination which heat does not decompose till the vapour of the water carries off the oxygenated muriatic acid, at which time the carbonat of magnesia is precipi-

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tated. In consequence of what we have now related, we ought to reckon, in addition to the two salts discovered by M. Berthollet, another salt, to which, according to the new French nomenclature, might be given the name *murias oxygenatus magnesia liquidus*, because we cannot obtain it in a concrete form. The oxygenated muriatic acid appears to enter into a very different, or at least into a much more intimate, combination with the metals; a subject which greatly merits the attention of the chemist.

The probability of this proposition is strengthened by the theory of M. Berthollet; according to which the mercury in corrosive muriat of mercury (corrosive sublimate) is combined with the oxygenated muriatic acid, so as not to be separated from it without great difficulty.

Common Salt, or *Sea-Salt*, the name of that salt extracted from the waters of the ocean, which is used in great quantities for preserving provisions, &c.

It is a perfect neutral salt, composed of marine or muriatic acid, saturated with mineral alkali. It has a saline but agreeable flavour. It requires about four times its weight of cold water to be dissolved, and nearly the same quantity of boiling water, according to Macquer. But according to Kirwan, it only requires 2.5 its weight of water to be dissolved in the temperature of sixty degrees of Fahrenheit. This salt always contains some part formed with a calcareous base; and, in order to have it pure, it must be dissolved in distilled water; then a solution of mineral alkali is to be poured in it until no white precipitation appears; then by filtering and evaporating the solution, a pure common salt is produced. Its figure is perfectly cubic, and those hollow pyramids, or *tremies* as the French call them, as well as the parallelopipeds formed sometimes in its crystallization, consist all of a quantity of small cubes disposed in those forms. Its decrepitation on the fire, which has been reckoned by some as a characteristic of this salt, although the vitriolated tartar, nitrous lead, and other salts, have the same property, is owing chiefly to the water, and perhaps also to the air of its crystallization.

Its specific gravity is 2,120 according to Kirwan. The acid of tartar precipitates nothing from it. One hundred parts of common salt contain thirty-three of real acid, fifty of mineral alkali, and seventeen of water. It is commonly found in salt water and salt springs, in the proportion of even thirty-six *per cent*. It is found also in coals, and in beds of gypsum. This salt is unalterable by fire, though it fuses, and becomes more opaque; nevertheless a violent fire, with the free access of air, causes it to evaporate in white flowers, which stick to the neighbouring bodies. It is only decomposed, as Macquer affirms, by the vitriolic and nitrous acid; and also by the boracic or sedative salt. But although nitre is decomposed very easily by arsenic, this neutral marine salt is nowise decomposed by the same. According to Mongez, the fixed vegetable alkali, when caustic, decomposes also this marine salt. It preserves from corruption almost all sorts of animal food much better for use than any other salt, as it preserves them without destroying their taste and qualities; but when applied in too small a quantity, it then forwards their corruption.

Of this most useful commodity there are ample stores on land as well as in the ocean. There are few countries which

which do not afford vast quantities of rock or fossil salt. Mines (A) of it have long been discovered and wrought in England, Spain, Italy, Germany, Hungary, Poland, and other countries of Europe. In several parts of the world, there are huge mountains which wholly consist of fossil salt. Of this kind are two mountains in Russia, nigh Astracan; several in the kingdoms of Tunis and Algiers, in Africa; and several also in Asia; and the whole island of Ormus in the Persian gulf almost entirely consists of fossil salt. The new world is likewise stored with treasures of this useful mineral, as well as with all other kinds of subterranean productions. Moreover, the sea affords such vast plenty of common salt, that all mankind might thence be supplied with quantities sufficient for their occasions. There are also innumerable springs, ponds, lakes, and rivers, impregnated with common salt, from which the inhabitants of many countries are plentifully supplied therewith. In some countries which are remote from the sea, and have little commerce, and which are not blessed with mines of salt or salt-waters, the necessities of the inhabitants have forced them to invent a method of extracting their common salt from the ashes of vegetables. The muriatic salt of vegetables was described by Dr Grew under the title of *lixivated marine salt*. Leeuwenhoek obtained cubical crystals of this salt from a lixivium of soda or kelp, and also from a solution of the lixivial salt of *carduus benedictus*; of which he hath given figures in a letter to the Royal Society, published in N^o 173. of their Transactions. Dr Dagner, in *Acad. N. C.* vol. v. obs. 150. takes notice of great quantities of it which he found mixed in pot-ashes. And the ingenious Dr Fothergill extracted plenty of it from the ashes of fern: See *Medical Essays*, vol. v. article 13.

The muriatic salt which the excellent Mr Boyle extracted from sandiver, and supposed to be produced from the materials used in making glass, was doubtless separated from the kelp made use of in that process. Kunckel also informs us, that he took an alkaline salt; and after calcining it with a moderate fire, dissolved it in pure water, and placing the solution in a cool cellar, obtained from it many crystals of a neutral salt. He supposes, that the alkaline salt was by the process converted into this neutral salt. But it is more reasonable to believe, that the alkaline salt which he applied was not pure, but mixed with the muriatic salt of vegetables, which by this process was only separated from it.

It is doubtless chiefly this muriatic salt which, in some of the inland parts of Asia, they extract from the ashes of duck-weed and of Adam's fig-tree, and use for their common salt.

That they are able in those countries to make common salt to profit from vegetables, ought not to be wondered at, since in Dehli and Agra, capitals of Indostan, salt is so scarce as usually to be sold for half-a-crown a pound. We may therefore give some credit to Marco Polo, when he informs us, that in the inner parts of the same quarter of the world, in the province

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of Caidu, lying west of Tebeth, the natives used salt instead of money, it being first made up in cakes, and sealed with the stamp of their prince; and that they made great profit of this money by exchanging it with the neighbouring nations for gold and musk. We are also told by Ludolfus, in his *Historia Aethiopica*, that in the country of the Abyssines there are mountains of salt, the which when dug out is soft, but soon grows hard; and that this salt serves them instead of money to buy all things. The same is confirmed by Ramusio.

Mr Boyle discovered common salt in human blood and urine. "I have observed it (says Mr Brownrigg), not only in human urine, but also in that of dogs, horses, and black cattle. It may easily be discovered in these, and many other liquids impregnated with it, by certain very regular and beautiful starry figures which appear in their surfaces after congelation. These figures I first observed in the great frost in the year 1739. The dung of such animals as feed upon grass or grain, doth also contain plenty of common salt."

Naturalists, observing the great variety of forms under which this salt appears, have thought fit to rank the several kinds of it under certain general classes; distinguishing it, most usually, into rock or fossil salt, sea-salt, and brine or fountain salt. To which classes, others might be added, of those muriatic salts which are found in vegetable and animal substances. These several kinds of common salt often differ from each other in their outward form and appearance, or in such accidental properties as they derive from the heterogeneous substances with which they are mixed. But when perfectly pure, they have all the same qualities; so that chemists, by the exactest inquiries, have not been able to discover any essential difference between them; for which reason we shall distinguish common salt after a different manner, into the three following kinds, *viz.* into rock or native salt, bay salt, and white salt.

By *rock salt*, or *native salt*, is understood all salt dug out of the earth, which hath not undergone any artificial preparation. Under the title of *bay salt* may be ranked all kinds of common salt extracted from the water wherein it is dissolved, by means of the sun's heat, and the operation of the air; whether the water from which it is extracted be sea-water, or natural brine drawn from wells and springs, or salt water stagnating in ponds and lakes. Under the title of *white salt*, or *boiled salt*, may be included all kinds of common salt extracted by coction from the water wherein it is dissolved; whether this water be sea water, or the salt water of wells, fountains, lakes, or rivers; or water of any sort impregnated with rock-salt, or other kinds of common salt.

The first of these kinds of salt is in several countries found so pure, that it serves for most domestic uses, without any previous preparation (trituration excepted); for of all natural salts rock-salt is the most abundantly furnished by nature in various parts of the world, being found in large masses, occupying great tracts of land. It is generally formed in strata under the surface of the

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earth,

(A) Amongst the salt mines of chief note are those of Northwich in Cheshire, Altemonte in Calabria, Hall in Tyrol, Cardona in Catalonia: also those stupendous mines at Wiliczka of Poland, and Soowar in Upper Hungary; of which see accounts in *Phil. Trans.* No 61. and 413.

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earth, as in Hungary, Moscow, Siberia, Poland, Calabria, Egypt, Ethiopia, and the East Indies. "In England (says Magellan), the salt mines at Northwich are in a high ground, and contain it in layers or strata of various colours, of which the yellow and brown are the most plentiful, as I have observed on the spot, which I visited in June 1782, in company with my worthy and learned friend Mr Volta, professor of Natural Philosophy in the University of Pavia, and well known by his great abilities, and many discoveries in that branch of knowledge. The mine into which we descended was excavated in the form of a vast dome or vault under ground, supported by various columns of the salt, that were purposely left to support the incumbent weight. And the workmen having lighted a number of candles all round its circumference, it furnished us with the most agreeable and surprising sight, whilst we were descending in the large tub, which serves to bring up the lumps that are broken from the mine, &c. See the description of the famous salt-mines of Wilieczka in Poland, by Mr Berniard, in the *Journal de Physique*, vol. 16. for 1780, pag. 459, in which the miraculous tales concerning those subterraneous habitations, villages, and towns, are reduced to their proper magnitude and estimate." But the English fossil salt is unfit for the uses of the kitchen, until by solution and coction it is freed from several impurities, and reduced into white salt. The British white salt also is not so proper as several kinds of bay salt for curing fish and such flesh-meats as are intended for sea provisions, or for exportation into hot countries. So that for these purposes we are obliged, either wholly or in part, to use bay salt, which we purchase in France, Spain, and other foreign countries.

However, it does not appear that there is any other thing requisite in the formation of bay salt than to evaporate the sea-water with an exceedingly gentle heat; and it is even very probable, that our common sea-salt by a second solution and crystallization might attain the requisite degree of purity. Without entering into any particular detail of the processes used for the preparation of bay-salt in different parts of the world, we shall content ourselves with giving a brief account of the best methods of preparing common salt.

At some convenient place near the sea-shore is erected the saltern. This is a long, low building, consisting of two parts; one of which is called the *fore-house*, and the other the *pan-house*, or *boiling-house*. The fore-house serves to receive the fuel, and cover the workmen; and in the boiling-house are placed the furnace, and pan in which the salt is made. Sometimes they have two pans, one at each end of the saltern; and the part appropriated for the fuel and workmen is in the middle.

The furnace opens into the fore-house by two mouths, beneath each of which is a mouth to the ash-pits. To the mouths of the furnace doors are fitted; and over them a wall is carried up to the roof, which divides the fore-house from the boiling-house, and prevents the dust of the coal and the ashes and smoke of the furnace from falling into the salt pan. The fore-house communicates with the boiling-house by a door, placed in the wall which divides them.

The body of the furnace consists of two chambers, divided from each other by a brick partition called the *mid-feather*; which from a broad base terminates in a

narrow edge nigh the top of the furnace; and by means of short pillars of cast iron erected upon it, supports the bottom of the salt pan; it also fills up a considerable part of the furnace, which otherwise would be too large, and would consume more coals than, by the help of this contrivance, are required. To each chamber of the furnace is fitted a grate, through which the ashes fall into the ash-pits. The grates are made of long bars of iron, supported underneath by strong cross bars of the same metal. They are not continued to the farthest part of the furnace, it being unnecessary to throw in the fuel so far: for the flame is driven from the fire on the grate to the farthest part of the furnace; and from thence passes together with the smoke, through two flues into the chimney; and thus the bottom of the salt pan is everywhere equally heated.

The salt pans are made of an oblong form, flat at the bottom, with the sides erected at right angles; the length of some of these pans is 15 feet, in breadth 12 feet, and the depth 16 inches; but at different works they are of different dimensions. They are commonly made of plates of iron, joined together with nails, and the joints are filled with a strong cement. Within the pan five or six strong beams of iron are fixed to its opposite sides, at equal distances, parallel to each other and to the bottom of the pan, from which they are distant about eight inches. From these beams hang down strong iron hooks, which are linked to other hooks or clasps of iron firmly nailed to the bottom of the pan; and thus the bottom of the pan is supported, and prevented from bending down or changing its figure. The plates most commonly used are of malleable iron, about four feet and a half long, a foot broad, and the third of an inch in thickness. The Scots prefer smaller plates, 14 or 15 inches square. Several make the sides of the pan, where they are not exposed to the fire, of lead; those parts, when made of iron, being found to consume fast in rust from the steam of the pan. Some have used plates of cast iron, five or six feet square, and an inch in thickness; but they are very subject to break when unequally heated, and shaken (as they frequently are) by the violent boiling of the liquor. The cement most commonly used to fill the joints is plaster made of lime.

The pan, thus formed, is placed over the furnace, being supported at the four corners by brick work; but along the middle, and at the sides and ends, by round pillars of cast iron called *taplins*, which are placed at three feet distance from each other, being about eight inches high, and at the top, where smallest, four inches in diameter. By means of these pillars the heat of the fire penetrates equally to all parts of the bottom of the pan, its four corners only excepted. Care is also taken to prevent the smoke of the furnace from passing into the boiling-house, by bricks and strong cement, which are closely applied to every side of the salt pan. In some places, as at Blyth in Northumberland, besides the common salt pans here described, they have a preparing-pan placed between two salt pans, in the middle part of the building, which in other works is the fore-house. The sea-water being received into this preparing-pan, is there heated and in part evaporated by the flame and heat conveyed under it through flues from the two furnaces of the salt pans. And the hot water, as occasion requires, is conveyed through troughs

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on the Art
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from the preparing-pan into the salt pans. Various other contrivances have been invented to lessen the expence of fuel, and several patents have been obtained for that purpose; but the salt-boilers have found their old methods the most convenient.

Between the sides of the pan and walls of the boiling-house, there runs a walk five or six feet broad, where the workmen stand when they draw the salt, or have any other business in the boiling-house. The same walk is continued at the end of the pan, next to the chimney; but the pan is placed close to the wall at the end adjoining to the fore-house.

The roof of the boiling-house is covered with boards fastened on with nails of wood, iron nails quickly mouldering into rust. In the roof are several openings, to convey off the watery vapours; and on each side of it a window or two, which the workmen open when they look into the pan whilst it is boiling.

Not far distant from the saltern, on the sea-shore, between full sea and low-water marks, they also make a little pond in the rocks, or with stones on the sand, which they call their *sump*. From this pond they lay a pipe, through which, when the tide is in, the sea-water runs into a well adjoining to the saltern; and from this well they pump it into troughs, by which it is conveyed into their ship or cistern, where it is stored up until they have occasion to use it.

The cistern is built close to the saltern, and may be placed most conveniently between the two boiling-houses, on the back side of the fore-house; it is made either of wood, or brick and clay; it sometimes wants a cover, but ought to be covered with a shed, that the salt-water contained therein may not be weakened by rains, nor mixed with foot and other impurities. It should be placed so high, that the water may conveniently run out of it, through a trough, into the salt pans.

Besides the buildings already mentioned, several others are required; as store-houses for the salt, cisterns for the bitter, an office for his majesty's salt-officers, and a dwelling-house for the salt-boilers.

All things being thus prepared, and the sea-water having stood in the cistern till the mud and sand are settled to the bottom, it is drawn off into the salt-pan. And at the four corners of the salt-pan, where the flame does not touch its bottom, are placed four small lead pans called *scratch pans*, which, for a salt-pan of the size above-mentioned, are usually about a foot and an half long, a foot broad, and three inches deep; and have a bow or circular handle of iron, by which they may be drawn out with a hook, when the liquor in the pan is boiling.

The salt pan being filled with sea-water, a strong fire of pit-coal is lighted in the furnace; and then, for a pan which contains about 1400 gallons, the salt-boiler takes the whites of three eggs, and incorporates them well with two or three gallons of sea water, which he pours into the salt-pan while the water contained therein is only lukewarm; and immediately stirs it about with a rake, that the whites of eggs may every where be equally mixed with the salt-water.

Instead of whites of eggs, at many salterns, as at most of those high Newcastle, they use blood from the butchers, either of sheep or black cattle, to clarify the sea-

water: And at many of the Scots salterns they do not give themselves the trouble of clarifying it.

As the water grows hot, the whites of eggs separate from it a black frothy scum, which arises to the surface of the water, and covers it all over. As soon as the pan begins to boil, this scum is all risen, and it is then time to skim it off.

The most convenient instruments for this purpose are skimmers of thin ash boards, six or eight inches broad, and so long that they may reach above half way over the salt-pan. These skimmers have handles fitted to them; and the salt-boiler and his assistant, each holding one of them on the opposite sides of the pan, apply them so to each other that they overlap in the middle, and beginning at one end of the pan, carry them gently forward together, along the surface of the boiling liquor, to the other end; and thus, without breaking the scum, collect it all to one end of the pan, from whence they easily take it out.

After the water is skimmed, it appears perfectly clear and transparent; and they continue boiling it briskly, till so much of the fresh or aqueous part is evaporated, that what remains in the pan is a strong brine almost fully saturated with salt, so that small saline crystals begin to form on its surface; which operation, in a pan filled 15 inches deep with water, is usually performed in five hours.

The pan is then filled up a second time with clear sea-water drawn from the cistern; and about the time when it is half filled, the scratch-pans are taken out, and being emptied of the scratch found in them, are again placed in the corners of the salt-pan. The scratch taken out of these pans is a fine white calcareous earth found in the form of powder, which separates from the sea-water during its coction, before the salt begins to form into grains. This subtil powder is violently agitated by the boiling liquor, until it is driven to the corners of the pan, where the motion of the liquor being more gentle, it subsides into the scratch pans placed there to receive it, and in them it remains undisturbed, and thus the greatest part of it is separated from the brine.

After the pan hath again been filled up with sea-water, three whites of eggs are mixed with the liquor, by which it is clarified a second time, in the manner before described; and it is afterwards boiled down to a strong brine as at first; which second boiling may take up about four hours.

The pan is then filled up a third time with clear sea-water; and after that, a fourth time; the liquor being each time clarified and boiled down to a strong brine, as before related; and the scratch-pans being taken out and emptied every time that the pan is filled up.

Then, at the fourth boiling, as soon as the crystals begin to form on the surface of the brine, they slacken the fire, and only suffer the brine to simmer, or boil very gently. In this heat they constantly endeavour to keep it all the time that the salt coarsens or granulates, which may be nine or ten hours. The salt is said to granulate, when its minute crystals cohere together into little masses or grains; which sink down in the brine and lie at the bottom of the salt-pan.

When most of the liquor is evaporated, and the salt thus lies in the pan almost dry on its surface, it is then

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time to draw it out. This part of the process is performed by raking the salt to one side of the pan into a long heap, where it drains a while from the brine, and is then filled out into barrows or other proper vessels, and carried into the store-house, and delivered into the custody of his majesty's officers. And in this manner the whole process is performed in 24 hours; the salt being usually drawn every morning.

In the store-house the salt is put hot into drabs, which are partitions like stalls for horses, lined on three sides and at the bottom with boards, and having a sliding-board on the fore-side to put in or draw out as occasion requires. The bottoms are made shelving, being highest at the back-side, and gradually inclining forwards; by which means the saline liquor, which remains mixed with the salt, easily drains from it; and the salt, in three or four days, becomes sufficiently dry; and is then taken out of the drabs, and laid up in large heaps, where it is ready for sale.

The saline liquor which drains from the salt is not a pure brine of common salt, but hath a sharp, and bitter taste, and is therefore called *bittern*; this liquor, at some works, they save for particular uses, at others throw away. A considerable quantity of this bittern is left at the bottom of the pan after the process is finished; which, as it contains much salt, they suffer to remain in the pan, when it is filled up with sea-water. But at each process this liquor becomes more sharp and bitter, and also increases in quantity: so that, after the third or fourth process is finished, they are obliged to take it out of the pan; otherwise it mixes in such quantities with the salt, as to give it a bitter taste, and disposes it to grow soft and run in the open air, and renders it unfit for domestic uses.

After each process there also adheres to the bottom and sides of the pan a white stony crust, of the same calcareous substance with that before collected from the boiling liquor. This the operators call *stone-scratch*, distinguishing the other found in the lead-pans by the name of *powder-scratch*. Once in eight or ten days they separate the stone-scratch from their pans with iron picks, and in several places find it a quarter of an inch in thickness. If this stony crust is suffered to adhere to the pan much longer, it grows so thick that the pan is burnt by the fire, and quickly wears away.

In M. de Pagés's Travels round the World, we find the following important fact. "I had been anxious (says that author) to ascertain by comparison, whether sea-water contains salt in greater quantity under the torrid than under the other zones; and my experiments on this subject served to show, contrary to what I expected, that sea-water is impregnated with salt in less quantity within than without the tropics." These experiments were made on a hundred pounds of sea-water, taken at the depth of ten fathoms, and weighed in water-scales. M. de Pagés has given a table of these experiments, from which it appears that 100 lb. of sea-water in 46° 12' S. lat. gave 4½ lb. of salt, and in 1° 16' only 3½ lb.; and that in 74° N. lat. it gave 4½ lb. and in 4° 22' only 3½ lb. these being the highest and lowest latitudes in which the experiments were made, and also the greatest and least quantities of salt.

Duty on Salt, is a distinct branch of his majesty's

extraordinary revenue, and consists in an excise of 3s. 4d. per bushel imposed upon all salt, by several statutes of King William and other subsequent reigns. This is not generally called an excise, because under the management of different commissioners: but the commissioners of the salt-duties have, by statute 1 Ann. c. 21. the same powers, and must observe the same regulations, as those of other excises. This tax had usually been only temporary: but by statute 26 Geo. II. c. 3. was made perpetual.

Triple Salts, a kind of salts formed by the union of three ingredients; the common neutrals being composed only of two. They are but lately discovered; and it is chiefly to the industry of Mr Bergman that we owe the knowledge we have of them. Sometimes we meet even with salts of four ingredients; in which case we call the resulting compounds *quadruple salts*. The most remarkable of these complicated substances are the following.

1. *Aphronitrum*, or mineral alkali, combined with a small quantity of calcareous earth. The three ingredients here are fixed air, pure alkali, and calcareous earth. "This salt (says Cronstedt) is so strongly united with the calcareous earth, that the latter enters with it into the very crystals of the salt; though, by repeated solutions, the earth is by degrees separated from it, and falls to the bottom after every solution." Cartheuser asserts, that, on throwing into its solution in water a fixed mineral alkali, the calcareous earth was precipitated; and on the contrary, by adding oil of vitriol, nitrous acid was expelled, and a Glauber's salt produced; "from which (says M. Magellan) it is evident, that the aphronitrum is a triple salt arising from the combination of the nitrous acid with calcareous earth and mineral fixed alkali." Wallerius mentions three species of this salt; viz. one which contains only a mixture of calcareous earth with fixed mineral alkali. This, he says, is the aphronitrum of the ancients; but he thinks that it ought to be rather called *aphronatron*, as they bestowed the name of *natron* upon the mineral alkali. The second species is that described by Cronstedt under the title of *calcareous nitre*. The third is that described by Hoffman under the title of *aphronitrum jamaense*, into whose composition the vitriolic acid enters. It is a kind of Glauber's salt, and is frequently confounded with it.

The aphronitrum of Cronstedt is described by him as appearing on old walls and below vaults, or in places where it cannot be washed away by the rain. When it contains any considerable quantity of calcareous earth, it shoots into rhomboidal crystals, a figure frequently affected by the calcareous earth when it shoots into crystals: but when the aphronitrum is purer, it forms prismatic crystals. From these circumstances, M. Magellan thinks, that the aphronitrum is not only a triple but a multiple salt; as these pieces of old mortar, covered with this white frost, on ancient walls, are the very same from which the saltpetre-makers extract the mother water of nitre; after mixing with it the vegetable ashes to furnish the alkali.

2. Common salt with magnesia, or mineral alkali, contaminated by muriatic magnesia. This is a compound of common salt with magnesia, and is very deliquescent, owing to the compound of magnesia and spirit

Salt.

vit of salt; for neither mineral alkali nor pure sea-salt are at all deliquescent in the air.

3. Vitriolated magnesia with vitriol of iron, or Epseom salt contaminated with copperas. This, according to M. Monet, is found in some mineral waters.

4. Native alum contaminated with copperas. This is sometimes found in the aluminous schistus, and effloresces in a feathery form, and is perhaps the plumose alum of the ancients.

5. Native alum contaminated with sulphur. Dr Withering informs us, that this salt is met with about Wedneburg and Belton; two places in Staffordshire, where the coal-pits are on fire. It sublimes to the surface, whence it may be collected in considerable quantity during dry or frosty weather. Our author, however, does not certainly affirm that this is a true chemical union, but the parts, he says, cannot be distinguished by the eye. It is kept in a deliquescent state by an access of vitriolic acid.

6. Native alum contaminated by vitriolated cobalt. This is found in some of the mines of Herregrund and Idria, where it shoots into long and slender filaments. M. Magellan supposes that this may be the *trichites* of the Greeks. On dissolving it in water, the presence of the vitriolic acid is discovered by adding a solution of terra ponderosa in muriatic acid; the phlogisticated alkali throws down a precipitate of cobalt, which forms a blue glass with cobalt or microcosmic salt.

7. Vitriol of copper with iron, the *vitriolum ferreo-cupreum cyanum* of Linnæus. It is also called *Vitriol of Hungary*, because found in plenty in that country. Its colour is that of blue mixed with green; but sometimes the one shade prevails, and sometimes the other.

8. Vitriol of copper, iron, and zinc, is prepared in Sweden from the water pumped out of the copper mines at Dalame. The copper does not precipitate from a solution of this salt by rubbing it on iron, as is the case with the common blue vitriol. Large crystals of this salt are often found in the water, the copper mines from whence it is prepared.

9. Vitriol of copper and zinc. This is a quadruple salt, styled by Linnæus *Vitriolum ferreo-zinco cupreum cyanum*. Its colour is blue inclining to green; and it does not precipitate the copper by rubbing on iron, as the common blue vitriol does. It is called the blue vitriol of Goslar. Mongez makes a separate article of a compound salt mentioned by Wallerius, consisting also of a vitriolated copper with zinc, but whose crystals are of a fine red colour, found lately in the mines of Fahlun in Sweden. He adds, that the pale-blue colour of the former salt shows the predominancy of the copper, by which it is necessarily distinguished from the latter, where the vitriol is over-saturated. M. Magellan, however, is of opinion, that the red colour is owing to a proper quantity of iron in a dephlogisticated state, which has been overlooked in that compound. To this kind also Wallerius refers the yellowish vitriol found in Hungary.

10. Vitriol of iron and zinc; the green vitriol from Goslar in the Hartz; the *vitreolum zinco-ferreum viride* of Linnæus: It is of a pale-green colour.

SALT-Mines. See SALT.

Rock-SALT. See SALT.

SALT-Water, or Sea-water (Distillation of). See SEA-Water.

Neutral SALTS. See CHEMISTRY, n° 172, 1180, and 1331.

SALT-Springs. Of these there are great numbers in different parts of the world, which undoubtedly have their origin from some of the large collections of fossil salt mentioned under the article *Common SALT*. See that article, and likewise *SPRING*.

SALTIER, one of the honourable ordinaries.—See HERALDRY, p. 452, and Plate CCXXX.

This, says G. Leigh, in his *Accedence of Arms*, p. 70. was anciently made of the height of a man, and driven full of pins, the use of which was to scale walls, &c. Upton says it was an instrument to catch wild beasts, whence he derives this word from *saltus*, i. e. “a fore-st.” The French call this ordinary *sautoir*, from *sauter* “to leap;” because it may have been used by soldiers to leap over walls of towns, which in former times were but low; but some modern authors think it is borne in imitation of St Andrew’s cross.

SALTING MEAT FOR THE USE OF THE NAVY. The following is the method recommended by the late admiral Sir Charles Knowles. When the ox is killed, let it be skinned and cut up into pieces fit for use as quick as possible, and salted while the meat is hot. For which purpose we must have a sufficient quantity of saltpetre and bay-salt pounded together and made hot in an oven, of each equal parts; with this sprinkle the meat at the rate of about two ounces to the pound; then lay the pieces on shelving boards to drain for 24 hours; which done, turn them and repeat the same operation, and let them lie for 24 hours longer. By this time the salt will be all melted, and have penetrated the meat, and the pieces be drained off; each piece must then be wiped dry with clean coarse cloths. A sufficient quantity of common salt must then be made hot likewise in an oven, and mixed when taken out with about one-third of brown sugar: then the casks being ready, rub each piece well with this mixture, and pack them well down, allowing about half a pound of the salt and sugar to each pound of meat, and it will keep good several years.

It is best to proportion the casks to the quantity used at one time, as the less it is exposed to the air the better. The same process does for pork, only a larger quantity of salt and less sugar must be used; but the preservation of both depends equally upon the meat being hot when first salted.

One pound of beef requires two ounces of saltpetre and two ounces of bay-salt, because it is to be sprinkled twice; an ounce of each to a pound of beef both times. The saltpetre requisite for 100 lb. of beef is 12½ lb. which at 12 d. per lb. is 12 s. 6 d.; and the same quantity of bay-salt (for 100 lb. of beef), at three half-pence per lb. is 1 s. 6 d.; of brown sugar and common salt mixed together half a pound is required, the former in the proportion of one-third, the latter of two-thirds, to a pound of beef. The brown sugar at 8 d. per pound. A hundred pounds of beef will take 250 ounces of it, which costs 10 s. 5 d. The quantity of common salt requisite for 100 lb. of beef is 533 ounces, which at 2 d. per lb. amounts to 5 s. 6 d. The expence therefore will stand thus.

Saltpetre.

Saltpetre, Saltzburg.	Saltpetre, 12½ lb. for 100 lb. of beef, is	L. 0 12 6
	Bay-salt, 12½ lb. for do. is	0 1 6
	Brown-sugar, 250 oz. for do. is	0 10 5
	Beef, 100 lb. at 6d. per pound, is	2 10 0
	Three casks for it at 1s. 6d each,	0 4 6
	Labour, and heating the oven twice,	0 4 0
	Common salt, 533 oz. for do. is	0 5 6

L. 4 8 5

These articles are taken high; and if beef costs 6d. per pound, meat cured thus will cost less than 1s. per pound; and therefore comes much cheaper than live-stock in long sea-voyages.

SALTPETRE. See CHEMISTRY, n° 740.

SALZBURG, an archbishopric of Germany, in the circle of Bavaria, bounded on the east by Stiria and the Upper Austria, on the west by the county of Tyrol, on the north by the duchy of Bavaria, and on the south by the duchy of Carinthia and the bishopric of Brixen. It is said to be about 100 miles from east to west, and upwards of 60 from north to south. With respect to the soil, it is very mountainous, yielding, however, excellent pasturage, and, in consequence of that, abounding in cattle, and horses remarkable for their mettle and hardiness. This country is particularly noted for the great quantities of salt it produces, and its strong passes and castles. Here are also considerable mines of gold, silver, copper, lead, iron, and lapis calaminaris, with quarries of marble, and a natural hot-bath. The principal rivers are the Salza, the Inn, the Ens, and Muer; which, as well as the lakes and other streams, are well-stored with fish. The peasants here are all allowed the use of arms, and trained to military duty. There are no nobles in the country, and most of the lands belong to the clergy. The states consist of the prelates, the cities, and towns. Notwithstanding this country is under the power of a Popish ecclesiastic, and the violent, arbitrary, and oppressive manner in which the Protestants have always been treated, great numbers of them still remained in it till the year 1732, when no less than 30,000 of them withdrew from it, dispersing themselves in the several Protestant states of Europe, and some of them were even sent from Great Britain to the American colonies. Besides brass and steel wares, and all sorts of arms and artillery, there are manufactures of coarse cloth and linen here. The archbishop has many and great prerogatives: he is a prince of the empire, and perpetual legate of the holy see in Germany, of which he is also primate. He has the first voice in the diet of this circle, and next to the electors in that of the empire, in the college of princes, in which he and the archduke of Austria preside by turns. No appeal lies from him either in civil or ecclesiastical causes, but to the pope alone; and he is intitled to wear the habit of a cardinal. He has also the nomination to several bishoprics; and the canonicates that fall vacant in the months in which the popes, by virtue of the concordat, are allowed to nominate, are all in his gift. His suffragans are the bishops of Freysingen, Ratibon, Brixen, Gurk, Chiemsee, Seckau, and Lavant; and of these, the four last are nominated, and even confirmed by him, and not by the pope. At the diet of the empire, his envoy takes place of all the princes that are present, under the degree of an elector. His revenue is said to amount to near 200,000l. a year, a great part

of it arising from the salt-works. He is able to raise 25,000 men; but keeps in constant pay, besides his guards, only one regiment, consisting of 1000 men. His court is very magnificent; and he has his hereditary great-officers, and high colleges. The chapter consists of 24 canons, who must be all noble, but are obliged only to four months residence. At his accession to the see, the archbishop must pay 100,000 crowns to Rome for the pall. There is an order of knighthood here, instituted in 1711, in honour of St Rupert, who was the first bishop of Saltzburg about the beginning of the 8th century.

SALZBURG, the capital of a German archbishopric of the same name, and which takes its own from the river Salza, on which it stands, and over which it has a bridge. It is a very handsome place, well fortified, and the residence of the archbishop. The houses are high, and all built of stone: the roofs are in the Italian taste, and you may walk upon them. The cattle here is very strong, and as strongly garrisoned, and well provided with provisions and warlike stores. The archbishop's palace is magnificent; and in the area before it is a fountain, esteemed the largest and grandest in Germany. The stables are very lofty; and the number of the horses usually kept by the archbishop is said to be upwards of 200. The city, of which one part stands on a steep rock, is well built, but the streets are narrow and badly paved. Besides the above-mentioned, there are two other stately palaces belonging to the archbishop, one of which is called the *Nuebau*, and the other *Mirabella*. The latter of these has a very beautiful garden; and the number of trees in the orangery is so great, that Mr Keyser tells us, 20,000 oranges have been gathered from them in one year. The river Salza runs close by the walls of this garden. There are a great many other fine structures in the city, public and private, such as palaces, monasteries, hospitals, and churches. In the cathedral dedicated to St Rupert (the apostle of Bavaria, and a Scotchman by birth), all the altars are of marble of different kinds, and one of the organs has above 320 pipes. The whole structure is extremely handsome. It is built of freestone in imitation of St Peter's at Rome. The portico is of marble, and the whole is covered with copper. Before the portico there is a large quadrangular place, with arches and galleries, in which is the prince's residence and there is a statue of Peter. In the middle of this place of an unnatural of the Virgin in bronze; it is fine, but of an unnatural size. There are large areas encompassed with handsome buildings on both sides of the church. In the middle of that which is to the left, there is a most magnificent fountain of marble, and some valuable figures of gigantic size. There is likewise a fountain in that to the right, but it is not to be compared with the former one, and the Neptune of it makes but a very pitiful figure. This town contains many more excellent buildings and statues, which remind one that the borders of Italy are not far distant. The winter and summer riding schools here are noble structures. The university was founded in 1620, and committed to the care of the Benedictines. Besides it, there are two colleges, in which the young noblemen are educated. E. Long. 33. 0. N. Lat. 47. 45.

SALVADORA, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants;

Salvage
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Salvia.

plants; and in the natural method ranking with those of which the order is doubtful. The calyx is quadrid; there is no corolla; the berry is monospermous; and the seed covered with an antlus or loose coat.

SALVAGE-MONEY, a reward allowed by the civil and statute law for the saving of ships or goods from the danger of the sea, pirates, or enemies.—Where any ship is in danger of being stranded, or driven on shore, justices of the peace are to command the constables to assemble as many persons as are necessary to preserve it; and, on its being preserved by their means, the persons assisting therein shall, in 30 days after, be paid a reasonable reward for their salvage; otherwise the ship or goods shall remain in the custody of the officers of the customs as a security for the same.

SALVATION, means the safety or preservation of any thing which is or has been in danger, and is generally used in a religious sense, when it means preservation from eternal death, or reception to the happiness of heaven, which is now offered to all men by the Christian religion upon certain conditions. The Hebrews but rarely make use of concrete terms as they are called, but often of abstracted. Thus, instead of saying that God saves them and protects them, they say that God is their salvation. Thus the word of salvation, the joy of salvation, the rock of salvation, the shield of salvation, the horn of salvation, &c. is as much as to say, The word that declares deliverance; the joy that attends the escaping a great danger, a rock where any one takes refuge, and where he may be in safety from his enemy; a buckler, that secures him from the arm of the enemy; a horn or ray of light, of happiness and salvation, &c. See **THEOLOGY**, &c.

SALVATOR ROSA. See **ROSA**.

SALVE REGINA, among the Romanists, the name of a Latin prayer, addressed to the Virgin, and sung after complines, as also upon the point of executing a criminal. Durandus says, it was composed by Peter bishop of Compostella. The custom of singing the *salve regina* at the close of the office was begun by order of St Dominic, and first in the congregation of Dominicans at Bologna, about 1237. Gregory IX. first appointed it to be general. St Bernard added the conclusion, *O dulcis! O pia*, &c.

SALVIA, SAGE: A genus of the monogynia order; belonging to the digynia class of plants; and in the natural method ranking under the 42d order, *Verticillatæ*. The corolla is unequal; and the filaments placed crosswise on a pedicle. The most remarkable species are,

1. The officinalis, or common large sage, which is cultivated in gardens; of which there are the following varieties: 1. The common green sage. 2. The wormwood sage. 3. The green sage, with a variegated leaf. 4. The red sage. 5. The red sage with a variegated leaf. These are accidental variations, and therefore are not enumerated as species. The common sage grows naturally in the southern parts of Europe, but is here cultivated in gardens for use; but that variety with red or blackish leaves is the most common in the British gardens; and the wormwood sage is in greater plenty here than the common green-leaved sage, which is but in few gardens.

2. The tomentosa, generally titled *balsamic sage* by the gardeners. The stalks of this do not grow so upright as those of the common sage; they are very hairy,

and divide into several branches, which are garnished with broad heart-shaped woolly leaves standing upon long foot-stalks; they are sawed on their edges, and their upper surfaces are rough: the leaves, which are upon the flower-stalks, are oblong and oval, standing upon shorter foot stalks, and are very slightly sawed on their edges; they grow in whorled spikes toward the top of the branches; the whorls are pretty far distant, but few flowers in each; they are of a pale blue, about the size of those of the common sort. This sage is preferred to all the others for making tea.

3. The auriculata, common sage of virtue, which is also well known in the gardens and markets. The leaves of this is narrower than those of the common sort; they are hoary, and some of them are indented on their edges towards the base, which indentures have the appearance of ears. The spikes of flowers are longer than those of the two former sorts, and the whorls are generally naked, having no leaves between them. The flowers are smaller, and of a deeper blue than those of common red sage.

4. The pomifera, with spear-shaped oval entire leaves, grow naturally in Crete. This hath a shrubby stalk, which rises four or five feet high, dividing into several branches. The flowers grow in spikes at the end of the branches; they are of a pale blue colour, and have obtuse empalements. The branches of this sage have often punctures made in them by insects, at which places grow large protuberances as big as apples, in the same manner as the galls upon an oak, and the rough balls on the briar.

All the sorts of sage may be propagated by seeds, if they can be procured; but, as some of them do not perfect their seeds in this country, and most of the sorts, but especially the common kinds for use, are easily propagated by slips, it is not worth while to raise them from seeds.

SALVIANUS, an ancient father of the Christian church, who flourished in the 5th century, and was well skilled in the sciences. It is said he lived in continence with his wife Palladia, as if she had been his sister; and that he was so afflicted at the wickedness of that age, that he was called the *Jeremiah of the fifth century*. He acquired such reputation for his piety and learning, that he was named the *master of the bishops*. He wrote a Treatise on Providence; another on Avarice; and some epistles, of which Baluze has given an excellent edition; that of Conrad Rittershusius, in 2 vols octavo, is also esteemed.

SALUTATION, the act of saluting, greeting, or paying respect and reverence to any one.

When men (writes the compiler of *L'Esprit des Curiosités de l'Usage et des Coutumes*) salute each other in an amiable manner, it signifies little whether they move a particular part of the body, or practise a particular ceremony. In these actions there must exist different customs. Every nation imagines it employs the most reasonable ones; but all are equally simple, and none are to be treated as ridiculous. This infinite number of ceremonies may be reduced to two kinds; to reverences or salutations; and to the touch of some part of the human body. To bend and prostrate one's self to express sentiments of respect, appears to be a natural motion; for terrified persons throw themselves on the earth when they adore invisible beings. The affectionate touch of the

Salvia
||
Salutation.

Salutation. the person they salute, is an expression of tenderness. As nations decline from their ancient simplicity, much farce and grimace are introduced. Superstition, the manners of a people, and their situation, influence the modes of salutation; as may be observed from the instances we collect.

Modes of salutation have sometimes very different characters, and it is no uninteresting speculation to examine their shades. Many display a refinement of delicacy, while others are remarkable for their simplicity, or for their sensibility. In general, however, they are frequently the same in the infancy of nations, and in more polished societies. Respect, humility, fear, and esteem, are expressed much in a similar manner; for these are the natural consequences of the organization of the body. These demonstrations become, in time, only empty civilities, which signify nothing; we shall notice what they were originally, without reflecting on what they are.

The first nations have no peculiar modes of salutation; they know no reverences, or other compliments, or they despise and disdain them. The Greenlanders laugh when they see an European uncover his head and bend his body before him whom he calls his superior. The islanders, near the Philippines, take the hand or foot of him they salute, and with it they gently rub their face. The Laplanders apply their nose strongly against that of the person they salute. Dampier says, that at New Guinea they are satisfied in placing on their heads the leaves of trees, which have ever passed for symbols of friendship and peace. This is at least a picturesque salute.

Other salutations are very incommodious and painful; it requires great practice to enable a man to be polite in an island situated in the Straits of the Sound. Houtman tells us, they saluted him in this odd way: "They raised his left foot, which they passed gently over the right leg, and from thence over his face." The inhabitants of the Philippines bend their body very low, in placing their hands on their cheeks, and raising at the same time one foot in the air, with their knee bent. An Ethiopian takes the robe of another, and ties it about his own waist, so that he leaves his friend half naked. This custom of undressing on these occasions takes other forms; sometimes men place themselves naked before the person whom they salute; it is to show their humility, and that they are unworthy of appearing in his presence. This was practised before Sir Joseph Banks, when he received the visit of two female Otahitians. Their innocent simplicity, no doubt, did not appear immodest in the eyes of the *virtuoso*. Sometimes they only undress partially. The Japanese only take off a slipper; the people of Arracan, their sandals in the street, and their stockings in the house.

In the progress of time, it appears servile to uncover one's self. The grandees of Spain claim the right of appearing covered before the king, to show that they are not so much subjected to him as the rest of the nation; and (this writer observes) we may remark, that the English do not uncover their heads so much as the other nations of Europe. In a word, there is not a nation (observes the humorous Montaigne), even to the people who, when they salute, turn their backs on their friends, but that can be justified in their customs. It must be observed of the negroes, that they are lovers of

ludicrous actions, and thus make all their ceremonies farcical. The greater part pull the fingers till they crack. Snelgrave gives an odd representation of the embassy which the king of Dahomy sent to him. The ceremonies of salutation consisted in the most ridiculous contortions. When two negro monarchs visit, they embrace in snapping three times the middle finger.

Barbarous nations frequently imprint on their salutations the dispositions of their character. When the inhabitants of Carmana (says Athenæus) would show a peculiar mark of esteem, they breathed a vein, and presented for the beverage of their friend the blood as it issued. The Franks tore hair from their head, and presented it to the person they saluted. The slave cut his hair, and offered it to his master. The Chinese are singularly affected in their personal civilities: they even calculate the number of their reverences. These are their most remarkable postures. The men move their hands in an affectionate manner, while they are joined together on the breast, and bow their head a little. If they respect a person, they raise their hands joined, and then lower them to the earth in bending the body. If two persons meet after a long separation, they both fall on their knees, and bend the face to the earth, and this ceremony they repeat two or three times. Surely we may differ here with the sentiment of Montaigne, and confess this ceremony to be ridiculous. It arises from their national affectation. They substitute artificial ceremonies for natural actions. Their expressions mean as little as their ceremonies. If a Chinese is asked how he finds himself in health? he answers, *Very well; thanks to your abundant felicity*. If they would tell a man that he looks well, they say, *Prosperity is painted on your face*; or, *Your air announces your happiness*. If you render them any service, they say, *My thanks should be immortal*. If you praise them, they answer, *How shall I dare to persuade myself of what you say of me?* If you dine with them, they tell you at parting, *We have not treated you with sufficient distinction*. The various titles they invent for each other it would be impossible to translate.

It is to be observed, that all these answers are prescribed by the Chinese ritual, or academy of compliments. There are determined the number of bows; the expressions to be employed; the genuflections; and the inclinations which are to be made to the right or left hand: the salutations of the master before the chair where the stranger is to be seated, for he salutes it most profoundly, and wipes the dust away with the skirts of his robe; all these and other things are noticed, even to the silent gestures, by which you are entreated to enter the house. The lower class of people are equally nice in these punctilios; and ambassadors pass 40 days in practising them before they are enabled to appear at court. A tribunal of ceremonies has been erected, and every day very odd decrees are issued, to which the Chinese most religiously submit.

The marks of honour are frequently arbitrary; to be seated, with us, is a mark of repose and familiarity; to stand up, that of respect. There are countries, however, in which princes will only be addressed by persons who are seated, and it is considered as a favour to be permitted to stand in their presence. This custom prevails in despotic countries: a despot cannot suffer without disgust the elevated figure of his subjects; he is

pleased to bend their bodies with their genius: his presence must lay those who behold him prostrate on the earth: he desires no eagerness, no attention; he would only inspire terror.

The pope makes no reverence to any mortal except the emperor, to whom he stoops a very little when he permits him to kiss his lips.

SALUTE, in military matters, a discharge of artillery, or small arms, or both, in honour of some person of extraordinary quality. The colours likewise salute royal persons, and generals commanding in chief; which is done by lowering the point to the ground. In the field, when a regiment is to be reviewed by the king or his general, the drums beat a march as he passes along the line, and the officers salute one after another, bowing their half-pikes or swords to the ground; then recover and take off their hats. The ensigns salute all together, by lowering their colours.

SALUTE, in the navy, a testimony of deference or homage rendered by the ships of one nation to another, or by ships of the same nation to a superior or equal.

This ceremony is variously performed, according to the circumstances, rank, or situation, of the parties. It consists in firing a certain number of cannon, or volleys of small arms; in striking the colours or top-sails; or in one or more general shouts of the whole ship's crew, mounted on the masts or rigging for that purpose.

The principal regulations with regard to salutes in the royal navy are as follow:

"When a flag-officer salutes the admiral and commander in chief of the fleet, he is to give him fifteen guns; but when captains salute him, they are to give him seventeen guns. The admiral and commander in chief of the fleet is to return two guns less to flag-officers, and four less to captains. Flag-officers saluting their superior or senior officer, are to give him thirteen guns. Flag-officers are to return an equal number of guns to flag-officers bearing their flags on the same mast, and two guns less to the rest, as also to captains.

"When a captain salutes an admiral of the white or blue, he is to give him fifteen guns; but to vice and rear admirals, thirteen guns. When a flag-officer is saluted by two or more of his majesty's ships, he is not to return the salute till all have finished, and then to do it with such a reasonable number of guns as he shall judge proper.

"In case of the meeting of two squadrons, the two chiefs only are to exchange salutes. And if single ships meet a squadron consisting of more than one flag, the principal flag only is to be saluted. No salutes shall be repeated by the same ships, unless there has been a separation of six months at least.

"None of his majesty's ships of war, commanded only by captains, shall give or receive salutes from one another, in whatsoever part of the world they meet.

"A flag officer commanding in chief shall be saluted, upon his first hoisting his flag, by all the ships present, with such a number of guns as is allowed by the first, third, or fifth articles.

"When any of his majesty's ships shall meet with any ship or ships belonging to any foreign prince or state, within his majesty's seas (which extend to Cape Finisterre), it is expected, that the said foreign ships do

strike their top-sail, and take in their flag, in acknowledgement of his majesty's sovereignty in those seas: and if any shall refuse or offer to resist, it is enjoined to all flag-officers and commanders to use their utmost endeavours to compel them thereto, and not suffer any dishonour to be done to his majesty. And if any of his majesty's subjects shall so much forget their duty, as to omit striking their top-sail in passing by his majesty's ships, the name of the ship and master, and from whence, and whither bound, together with affidavits of the fact, are to be sent up to the secretary of the admiralty, in order to their being proceeded against in the admiralty court. And it is to be observed, that in his majesty's seas, his majesty's ships are in no wise to strike to any; and that in other parts, no ship of his majesty's is to strike her flag or top-sail to any foreigner, unless such foreign ship shall have first struck, or at the same time strike, her flag or top-sail to his majesty's ship.

"The flag-officers and commanders of his majesty's ships are to be careful to maintain his majesty's honour upon all occasions, giving protection to his subjects, and endeavouring, what in them lies, to secure and encourage them in their lawful commerce; and they are not to injure, in any manner, the subjects of his majesty's friends and allies.

"If a foreign admiral meets with any of his majesty's ships, and salutes them, he shall receive gun for gun. If he be a vice-admiral, the admiral shall answer with two guns less. If a rear-admiral, the admiral and vice-admiral shall return two less. But if the ship be commanded by a captain only, the flag-officer shall give two guns less, and captains an equal number.

"When any of his majesty's ships come to an anchor in a foreign port or road, within cannon-shot of its forts, the captain may salute the place with such a number of guns as have been customary, upon good assurance of having the like number returned, but not otherwise. But if the ship bears a flag, the flag-officer shall first carefully inform himself how flags of like rank, belonging to other crowned heads, have given or returned salutes, and to insist upon the same terms of respect.

"It is allowed to the commanders of his majesty's ships in foreign parts, to salute the persons of any admirals, commanders in chief, or captains of ships of war of foreign nations, and foreign noblemen, or strangers of quality, as also the factories of the king's subjects, coming on board to visit the ship; and the number of guns is left to the commander, as shall be suitable to the occasion and the quality of the persons visiting; but he is nevertheless to remain accountable for any excesses in the abuse of this liberty. If the ship visited be in company with other ships of war, the captain is not to make use of the civilities allowed in the preceding articles but with leave and consent of the commander in chief or the senior captain.

"Merchant-ships, whether foreigners or belonging to his majesty's subjects, saluting the admiral of the fleet, shall be answered by six guns less; when they salute any other flag-ships, they shall be answered by four guns less; and if they salute men of war commanded by captains, they shall be answered by two guns less. If several merchant-ships salute in company, no return is to be made till all have finished, and then by

Salute.

Saluzzo II
Samaneans. such a number of guns as shall be thought proper; but though the merchant-ships should answer, there shall be no second return.

"None of his majesty's ships of war shall salute any of his majesty's forts or castles in Great Britain or Ireland, on any pretence whatsoever."

SALUZZO, called by the French *Saluces*, a town and castle of Italy, in Piedmont, and capital of a marquisate of the same name, with a bishop's see. It is situated on an eminence at the foot of the Alps near the river Po, in E. Long. 18. 27. N. Lat. 44. 35. It is subject to the king of Sardinia.

SALUZZO, the marquisate of, a province of Piedmont in Italy, bounded on the north by Dauphiny and the province of the Four Valleys, on the east by those of Savigliano and Fossano, on the south by that of Cona and the county of Nice, and on the west by Barcelonetta. It was ceded to the duke of Savoy in 1601.

SAMA, a town and fort in the hands of the Dutch on the Gold Coast of Africa, stands on an eminence, the fort being watered by the pleasant river of St George, that discharges itself into the sea. The town contains above 200 houses, which seem to form three distinct villages, one of which is immediately under the cannon of the Dutch fort St Sebastian. Des Marchais deems this town to be one of the largest on the whole coast, Barbot likewise agreeing with him in its situation, extent, and number of inhabitants. The sole employment of the natives is fishing; a circumstance which easily accounts for their poverty. The government of this place is republican, the magistrates having the supreme power, being subject to periodical changes, and under the authority of the king of Gavi, who seldom however interferes in the affairs of the state. This prince resides some leagues distant from the sea, is rich, and much respected by his neighbours.

SAMANEANS, in antiquity, a kind of magi or philosophers, have been confounded by some with the Bramins. They proceeded from Ariana, a province of Persia, and the neighbouring countries, spread themselves in India, and taught new doctrines.

The Bramins, before their arrival, it is said, were in the highest period of their glory, were the only oracles of India, and their principal residence was on the banks of the Ganges, and in the adjacent mountains; while the Samaneans were settled towards the Indus. Others say, that the Bramins acquired all their knowledge from the Samaneans, before whose arrival it would be difficult to prove that the Bramins were the religious teachers of the Indians. The most celebrated and ancient of the Samanean doctors was Bouitta, or Budda, who was born 683 years before Christ. His scholars paid him divine honours; and his doctrine, which consisted chiefly in the transmigration of souls, and in the worship of cows, was adopted not only in India, but also in Japan, China, Siam, and Tartary. It was propagated, according to M. de Sainte Croix, in Thibet, in the 8th century, and succeeded there the ancient religion of Zamoksis. The Samaneans, or Buddhists, were entirely destroyed in India by the jealous rage of the Bramins, whose absurd practices and fables they affected to treat with contempt; but several of their books are still preserved and respected on the coasts of Malabar.

We are told, too, that several of the Bramin orders have adopted their manner of living, and openly profess the greatest part of their doctrines. *L'Ezour Vedam*, ou *Ancien Comment du Vedam*, published by M. de S. Croix, Paris 1779. See **BRAMINS**.

SAMAR, a Spanish island not far from Manilla in the East Indies, is called *Samar* on the side which looks towards the other isles, and *Ibabao* on that next the ocean. It is like the trunk of a man's body, without head or legs. Its greatest length, from Cape Baliquaton, which, with the point of Manilla, makes the strait of St Bernardino, in 13 degrees 30 minutes north latitude, extends to that of Guignan in 11 degrees towards the south. The other two points, making the greatest breadth of the island, are Cabo de Spirito Santo, or *Cape of the Holy Ghost*, the high mountains of which are the first discovered by ships from New Spain; and that which lying opposite to Leyte westward, makes another strait, scarce a stone's throw over. The whole compass of the island is about 130 leagues. Between Guignan and Cape Spirito Santo is the port of Borognon, and not far from thence those of Palapa and Catubig, and the little island of Bin, and the coast of Catarman. Vessels from countries not yet discovered are very frequently cast away on the before-mentioned coast of Palapa. Within the straits of St Bernardino, and beyond Baliquaton, is the coast of Samar, on which are the villages of Ibatan, Bangahon, Cathalogan, Paranos, and Calviga. Then follows the strait of St Juanillo, without which, standing eastward, appears the point and little island of Guignan, where the compass of the island ends. It is mountainous and craggy, but fruitful in the few plains there are. The fruits there are much the same as that of **LEYTE**; but there is one particular fort, called by the Spaniards *chicoy*, and by the Chinese, who put a great value on it, *seyzu*, without kernels.

SAMARA, in botany; a genus of the monogynia order, belonging to the tetrandria class of plants. The calyx is quadripartite, the corolla tetrapetalous; the stamina immersed in the base of the petal; the stigma funnel-shaped.

SAMARCAND, or **SARMACAND**, an ancient and famous town of Asia, capital of the kingdom of the same name in the country of the Usbeck Tartars, with a castle and a famous university. The houses are built with stones, and it carries on a trade in excellent fruits. It is pleasantly seated near the river Sogde, a branch of the Amu, E. Long. 69. 0. N. Lat. 39. 50. This town was the capital of the kingdom of Sogdia in the time of Alexander the Great, when it was called *Maracanda*. It was afterwards the capital of the empire of Tamerlane the Great. In the time of Jenghiz Khan, it was forced to yield to the arms of that cruel conqueror; by whom the garrison, amounting to 30,000 men, were butchered; 30,000 of the inhabitants, with their wives and children, were presented to his generals; the rest were permitted to live in the city, on paying a tribute of 300,000 dinars or crowns of gold.

SAMARIA (anc. geog.), one of the three larger Cisjordan districts, situated in the middle between Galilee to the north and Judea to the south, beginning at the village Ginea, in the Campus Magnus, and ending at the toparchy called *Acrobatena* (Josephus). Its soil

maria. foil differing in nothing from that of Judæa; both equally hilly and champaign, both equally fertile in corn and fruit (id.) Called the *kingdom of Samaria in Ephraim* (Bible); comprising the ten tribes, and consequently all the country to the north of Judea and east and west of Jordan.

SAMARIA, the capital city of the kingdom of Samaria, or of the ten tribes. It was built by Omri king of Israel, who began to reign in the year of the world 3079, and died 3086 (1 Kings xvi. 24.) He bought the hill Samaria of Shemer for two talents of silver, or for the sum of L. 684:7:6. It took the name of *Samaria* from Shemer the owner of the hill; though some think there were already some beginnings of a city, because, before the reign of Omri, there is mention made of Samaria (1 Kings xiii. 32.) in the year of the world 3030. But others take this for a prolepsis, or an anticipation, in the discourse of the man of God, who speaks of Samaria under the reign of Jeroboam.

However this be, it is certain that Samaria was no considerable place, and did not become the capital city of the kingdom of Israel till after the reign of Omri. Before him, the kings of Israel dwelt at Shechem, or at Tirzah. Samaria was situated upon an agreeable and fruitful hill, and an advantageous situation, and was 12 miles from Dothaim, 12 from Merrom, and four from Atharoth. Josephus says, it was a day's journey from Jerusalem. Besides, though it was built upon an eminence, yet it must have water in abundance; since we find medals struck in this city, whereon is represented the goddess Astarte treading a river under foot; which proves it to have been well watered. And Josephus observes, that when it was taken by John Hircanus the prince of the Jews, he entirely demolished it, and caused even the brook to flow over its ruins, to obliterate all the footsteps of it.

The kings of Samaria omitted nothing to make this city the strongest, the finest, and the richest, that was possible. Ahab built there a palace of ivory (1 Kings xxii. 39.), that is, in which there were many ornaments of ivory. Amos describes Samaria under Jeroboam II. as a city sunk into all excesses of luxury and effeminacy (Amos iii. 15. and iv. 1, 2).

Ben-hadad king of Syria built public places or streets in Samaria (1 Kings xx. 34.) probably for traffic, where his people dwelt to promote trade. His son Ben-hadad besieged this place under the reign of Ahab (1 Kings xx. 1, 2, 3, &c.) in the year of the world 3103.

The following year, Ben-hadad brought an army into the field, probably with a design to march against Samaria: but his army was again cut in pieces. Some years after this, Ben-hadad came a third time, lay down before Samaria, and reduced it to such necessities by famine, that a mother was there forced to eat her own child; but the city was relieved by a sensible effect of the protection of God.

Lastly, it was besieged by Shalmaneser king of Assyria, in the ninth year of Hoshea king of Israel (2 Kings xvii. 6, 7, &c.), which was the fourth of Hezekiah king of Judah. It was taken three years after, in the year of the world 3283. The prophet Hosea speaks of the cruelties exercised by Shalmaneser against the besieged (Hos. x. 4, 8, 9. xiv. 1.); and Micah says, that this

city was reduced to a heap of stones (Mic. i. 6). The Cuthites that were sent by Esar-haddon to inhabit the country of Samaria, did not think it worth their while to repair the ruins of this city; they dwelt at Shechem, which they made the capital city of their state. They were still upon this footing when Alexander the Great came into Phœnicia and Judea. However, the Cuthites had rebuilt some of the houses of Samaria, even from the time of the return from the captivity, since Ezra then speaks of the inhabitants of Samaria (Ezra iv. 17. Nehem. iv. 2.); and that the Samaritans, being jealous of the favours that Alexander the Great had conferred on the Jews, revolted from him while this prince was in Egypt, and burnt Andromachus alive, whom Alexander had left governor of Syria. Alexander marched against them, took Samaria, and put in Macedonians to inhabit it; giving the country round it to the Jews; and to encourage them to cultivate it, he granted them an exemption from tribute. The king of Egypt and Syria, who succeeded Alexander, deprived them of the property of this country.

But Alexander Balas king of Syria restored to Jonathan Maccabæus the cities of Lydda, Ephrem, and Ramatha, which he cut off from the country of Samaria (1 Mac. x. 30, 38, and xi. 28, 34.) Lastly, the Jews re-entered into the full possession of this whole country under John Hircanus the Asmonæan, who took Samaria, and ruined it in such a manner, according to Josephus, that he made the river run through its ruins. It continued in this condition to the year of the world 3947, when Aulus Gabinus, the proconsul of Syria, rebuilt it, and gave it the name of Gabiniana. But it was yet but very inconsiderable, till Herod the Great restored it to its ancient lustre, and gave it the Greek name of Sebaste, which in Latin is Augusta, in honour of the emperor Augustus, who had given him the property of this place.

The sacred authors of the New Testament speak but little of Samaria; and when they do mention it, it is rather in respect of the country about it, than of the city itself. (See Luke xvii. 11. John iv. 4, 5.)—It was there our Lord had the conversation with the woman of Samaria, that is, with a Samaritan woman of the city of Sychar. After the death of St Stephen, (Acts viii. 1, 2, 3.), when the disciples were dispersed through the cities of Judea and Samaria, St Philip the deacon withdrew into the city of Samaria, where he made several converts. When the apostles heard that this city had received the word of God, they sent Peter and John thither, to communicate the Holy Ghost to such as had been baptized. It was there they found Simon Magus, who offered money to the apostles, being in hopes to buy this power of communicating the Holy Ghost. Samaria is never called Sebaste in the books of the New Testament, though strangers hardly knew it but by this name. St Jerome says, that it was thought Obadiah was buried at Samaria. They also shewed there the tombs of Elisha and of St John the Baptist. There are found many ancient medals that were struck at Sebaste, or Samaria, and some bishops of this city have subscribed to the ancient councils.

SAMARITANS. We have already spoken of the Samaritans under the article CUTH. The Samaritans

Samaritans are the people of the city of Samaria, and the inhabitants of the province of which Samaria was the capital city. In this sense, it should seem that we might give the name of Samaritans to the Israelites of the ten tribes, who lived in the city and territory of Samaria. However, the sacred authors commonly give the name of Samaritans only to those strange people whom the kings of Assyria sent from beyond the Euphrates to inhabit the kingdom of Samaria, when they took away captive the Israelites that were there before. Thus we may fix the epoch of the Samaritans at the taking of Samaria by Salmaneser, in the year of the world 3283. This prince carried away captive the Israelites that he found in the country, and assigned them dwellings beyond the Euphrates, and in Assyria, (2 Kings xvii. 24.) He sent other inhabitants in their stead, of which the most considerable were the Cuthites, a people descended from Cush, and who are probably of the number of those whom the ancients knew by the name of Scythians.

After Salmaneser, his successor Esar-haddon was informed, that the people which had been sent to Samaria were infested by lions that devoured them, (2 Kings xvii. 25.) ; this he imputed to the ignorance of the people in the manner of worshipping the god of the country. Wherefore Esar-haddon sent a priest of the God of Israel that he might teach them the religion of the Hebrews. But they thought they might blend this religion with that which they professed before; so they continued to worship their idols as before, in conjunction with the God of Israel, not perceiving how absurd and incompatible these two religions were.

It is not known how long they continued in this state; but at the return from the captivity of Babylon, it appears they had entirely quitted the worship of their idols; and when they asked permission of the Israelites that they might labour with them at the rebuilding of the temple of Jerusalem, they affirmed, that from the time that Esar-haddon had brought them into this country they had always worshipped the Lord, (Ezra iv. 1, 2, 3.) And indeed, after the return from the captivity, the scripture does not any where reproach them with idolatrous worship, though it does not dissemble either their jealousy against the Jews, nor the ill offices they had done them at the court of Persia, by their slanders and calumnies, or the stratagems they contrived to hinder the repairing of the walls of Jerusalem.— (Nehem. ii. 10, 19. iv. 2, &c. vi. 1, 2, &c.)

It does not appear that there was any temple in Samaria, in common to all these people who came thither from beyond the Euphrates, before the coming of Alexander the Great into Judea. Before that time, every one was left to his own discretion, and worshipped the Lord where he thought fit. But they presently comprehended, from the books of Moses which they had in their hands, and from the example of the Jews their neighbours, that God was to be worshipped in that place only which he had chosen. So that since they could not go to the temple of Jerusalem, which the Jews would not allow of, they bethought themselves of building a temple of their own upon mount Gerizim, near the city of Shechem, which was then their capital. Therefore Sanballat, the governor of the Samaritans, applied himself to Alexander, and told him he had a son-in-law, called Manasses, son to Jaddus

the high-priest of the Jews, who had retired to Samaria with a great number of other persons of his own nation; that he desired to build a temple in this province, where he might exercise the high-priesthood; that this undertaking would be to the advantage of the king's affairs, because in building a temple in the province of Samaria, the nation of the Jews would be divided, who are a turbulent and feditious people, and by such a division would be made weaker, and less in a condition to undertake new enterprizes.

Alexander readily consented to what Sanballat desired, and the Samaritans presently began their building of the temple of Gerizim, which from that time they have always frequented, and still frequent to this day, as the place where the Lord intended to receive the adoration of his people. It is of this mountain, and of this temple, that the Samaritan woman of Sychar spoke to our Saviour, (John iv. 20.) See GERIZIM.

The Samaritans did not long continue under the obedience of Alexander. They revolted from him the very next year, and Alexander drove them out of Samaria, put Macedonians in their room, and gave the province of Samaria to the Jews. This preference that Alexander gave to the Israelites contributed not a little to increase that hatred and animosity that had already obtained between these two people. When any Israelite had deserved punishment for the violation of some important point of the law, he presently took refuge in Samaria or Shechem, and embraced the way of worship according to the temple of Gerizim. When the Jews were in a prosperous condition, and affairs were favourable to them, the Samaritans did not fail to call themselves Hebrews, and pretended to be of the race of Abraham. But no sooner were the Jews fallen into discredit or persecution, but the Samaritans immediately disowned them, would have nothing in common with them, acknowledged themselves to be Phœnicians originally, or that they were descended from Joseph and Manasseh his son. This used to be their practice in the time of Antiochus Epiphanes.

The Samaritans, having received the Pentateuch, or the five books of Moses, from the priest that was sent by Esar-haddon, have preserved it to this day, in the same language and character it was then, that is, in the old Hebrew or Phœnician character, which we now call the Samaritan, to distinguish it from the modern Hebrew character, which at present we find in the books of the Jews. These last, after their captivity, changed their old characters, and took up those of the Chaldee, which they had been used to at Babylon, and which they continue still to use. It is wrong, says F. Calmet, to give this the name of the Hebrew character, for that can be said properly only of the Samaritan text. The critics have taken notice of some variations between the Pentateuch of the Jews and that of the Samaritans; but these varieties of reading chiefly regard the word Gerizim, which the Samaritans seem to have purposely introduced to favour their pretensions, that mount Gerizim was the place in which the Lord was to be adored. The other various readings are of small importance.

The religion of this people was at first the Pagan. Every one worshipped the deity they had been used to in their own country (2 Kings xvii. 25, 30, 31.)

The

Samaritans. The Babylonians worshipped Succoth-benoth; the Cuthites, Nergal; the Hamathites, Ashima; the Avites, Nibhaz and Tartak; the Sepharvites, Adrammelech and Anammelech. If we would enumerate all the names of false gods to whom the Samaritans have paid a sacrilegious worship, we should have enough to do. This matter is sufficiently perplexed, by reason of the different names by which they were adored by different nations, inasmuch that it would be almost impossible to clear up this affair. See **SUCCOTH-BENOTH**, &c. Afterwards, to this profane worship the Samaritans added that of the Lord, the God of Israel, (2 Kings xvii. 29, 30, 31, 32.) They gave a proof of their little regard to this worship of the true God, when under Antiochus Epiphanes they consecrated their temple at Gerizim to Jupiter Argivus. In the time of Alexander the Great, they celebrated the sabbatical year, and consequently the year of jubilee also. We do not know whether they did it exactly at the same time with the Jews, or whether they observed any other epoch; and it is to little purpose that some critics have attempted to ascertain the first beginning of it. Under the kings of Syria they followed the epoch of the Greeks, or that of the Seleucidae, as other people did that were under the government of the Seleucidae. After that Herod had re-established Samaria, and had given it the name of Sebaste, the inhabitants of this city, in their medals, and all public acts, took the date of this new establishment. But the inhabitants of Samaria, of which the greater part were Pagans or Jews, were no rule to the other Samaritans, who probably reckoned their years according to the reigns of the emperors they were subject to, till the time they fell under the jurisdiction of the Mahometans, under which they live at this day; and they reckon their year by the Hegira, or, as they speak, according to the reign of Ishmael, or the Ishmaelites. Such of our readers as desire to be further acquainted with the history of the ancient Samaritans, we refer to the works of Josephus, where they will find that subject largely treated of.

As to their belief, it is objected to them, that they receive only the Pentateuch, and reject all the other books of scripture, chiefly the prophets, who have more expressly declared the coming of the Messiah.— They have also been accused of believing God to be corporeal, of denying the Holy Ghost, and the resurrection of the dead. Jesus Christ reproaches them (John iv. 22.) with worshipping they know not what; and in the place already referred to he seems to exclude them from salvation, when he says, that “Salvation is of the Jews.” True it is, that these words might only signify, that the Messiah was to proceed from the Jews; but the crime of schism alone, and a separation from the true church, was sufficient to exclude them from salvation. The Samaritan woman is a sufficient testimony that the Samaritans expected a Messiah, who they hoped would clear up all their doubts (John iv. 25.) Several of the inhabitants of Shechem believed at the preaching of Jesus Christ, and several of Samaria believed at that of St Philip; but it is said, they soon fell back to their former errors, being perverted by Simon Magus.

The Samaritans at present are very few in number. Joseph Scaliger, being curious to know their usages,

wrote to the Samaritans of Egypt, and to the high-Samaritan, priest of the whole sect who resided at Neapolis in Syria. They returned two answers to Scaliger, dated in the year of the Hegira 998. These were preserved in the French king's library, and were translated into Latin by father Morin, and printed in England in the collection of that father's letters, in 1682, under the title of *Antiquitates Ecclesie Orientalis*. By these letters it appears, that they believe in God, in his servant Moses, the holy law, the mountain Gerizim, the house of God, the day of vengeance and of peace; that they value themselves upon observing the law of Moses in many points more rigidly than the Jews themselves.— They keep the sabbath with the utmost strictness required by the law, without stirring from the place they are in, but only to the synagogue. They go not out of the city, and abstain from their wives on that day. They never delay circumcision beyond the eighth day. They still sacrifice to this day in the temple on mount Gerizim, and give to the priest what is enjoined by the law. They do not marry their own nieces, as the Jews do, nor do they allow themselves a plurality of wives. Their hatred for the Jews may be seen through all the history of Josephus, and in several places of the New Testament. The Jewish historian informs us, that under the government of Coponius, one passover night, when they opened the gates of the temple, some Samaritans had scattered the bones of dead men there, to insult the Jews, and to interrupt the devotion of the festival. The evangelists shew us, that the Jews and Samaritans held no correspondence together (John iv. 9.) “The Jews have no dealings with the Samaritans.” And the Samaritan woman of Sychar was much surprised that Jesus talked with her, and asked drink of her, being a Samaritan. When our Saviour sent his apostles to preach in Judea, he forbade them to enter into the Samaritan cities, (Matt. x. 5); because he looked upon them as schismatics, and as strangers to the covenant of Israel. One day when he sent his disciples to provide him a lodging in one of the cities of the Samaritans, they would not entertain him, because they perceived he was going to Jerusalem. (Luke ix. 52, 53.) “Because his face was as though he would go to Jerusalem.” And when the Jews were provoked at the reproaches of Jesus Christ, they told him he was a Samaritan (John viii. 48.), thinking they could say nothing more severe against him. Josephus relates, that some Samaritans having killed several Jews as they were going to the feast at Jerusalem, this occasioned a kind of a war between them. The Samaritans continued their fealty to the Romans, when the Jews revolted from them; yet they did not escape from being involved in some of the calamities of their neighbours.

There are still at this day some Samaritans at Shechem, otherwise called Naplouse. They have priests there, who say they are of the family of Aaron. They have a high-priest, who resides at Shechem, or at Gerizim, who offers sacrifices there, and who declares the feast of the passover, and all the other feasts, to all the dispersed Samaritans. Some of them are to be found at Gaza, some at Damascus, and some at Grand Cairo.

SAMBUCUS, **EBBER**, in botany: A genus of the trigynia order, belonging to the pentandria class of plants; and in the natural method ranking under the

Sambucus 43d order, *Dumosa*. The calyx is quinquepartite; the corolla quinquefid; the berry trispermous.

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Samiels.

The most remarkable species are, 1. The nigra, or common black elder-tree, rises with a tree-stem, branching numerously into a large spreading head, twenty or thirty feet high; pinnated leaves, of two or three pair of oval lobes and an odd one; and large five-parted umbels of white flowers towards the ends of the branches, succeeded by bunches of black and other different coloured berries, in the varieties; which are—Common black-berried elder-tree—White-berried elder—Green-berried elder—Laciniated, or parsley-leaved elder, having the folioles much laciniated, so as to resemble parsley leaves—Gold-striped-leaved elder—Silver-striped elder—Silver-dusted elder. 2. The racemosa, racemose red-berried elder, rises with a tree-like stem, branching ten or twelve feet high, having reddish-brown branches and buds; pinnated leaves of six or seven oval deeply-fawed lobes; and compound, oval, racemous, clusters of whitish-green flowers, succeeded by oval clusters of red berries. This is a resident of the mountainous parts of the south of Europe, and is retained in our gardens as a flowering shrub, having a peculiar singularity in its oval-clustered flowers and berries. 3. The Canadensis, or Canada shrubby elder, rises with a shrubby stem, branching eight or ten feet high, having reddish shoots; somewhat bipinnated leaves, often ternate below, the other composed of five, seven, or nine oval lobes; and towards the ends of the branches, cymose, quinquepartite umbels of flowers, succeeded by blackish red berries. All the sorts of elder are of the deciduous tribe, very hardy, and grow freely anywhere; are generally free shooters, but particularly the common elder and varieties, which make remarkably strong, jointed shoots, of several feet in length, in one season; and they flower mostly in summer, except the racemose elder, which generally begins flowering in April; and the branches being large, spreading, and very abundant, are exceedingly conspicuous; but they emit a most disagreeable odour. The flowers are succeeded in the most of the sorts by large bunches of ripe berries in autumn, which, although very unpalatable to eat, are in high estimation for making that well known cordial liquor called *elder wine*, particularly the common black-berried elder. The merit of the elder in gardening may be both for use and ornament, especially in large grounds.

SAMIAN EARTH, in the materia medica, the name of two species of marl used in medicine, viz.

1. The white kind, called by the ancients *collyrium samium*, being astringent, and therefore good in diarrhœas, dysenteries, and hæmorrhagies; they also used it externally in inflammations of all kinds. 2. The brownish-white kind, called *asser samius* by Dioscorides; this also stands recommended as an astringent.

SAMIELS, the Arabian name of a hot wind peculiar to the desert of Arabia. It blows over the desert in the months of July and August from the north-west quarter, and sometimes it continues with all its violence to the very gates of *Bagdad*, but never affects any body within the walls. Some years it does not blow at all, and in others it appears six, eight, or ten times, but seldom continues more than a few minutes at a time. It often passes with the apparent quickness of lightning. The Arabians and Persians, who are acquainted with

the appearance of the sky at or near the time this wind ariseth, have warning of its approach by a thick haze, which appears like a cloud of dust arising out of the horizon; and they immediately upon this appearance throw themselves with their faces to the ground, and continue in that position till the wind is passed, which frequently happens almost instantaneously; but if, on the contrary, they are not careful or brisk enough to take this precaution, which is sometimes the case, and they get the full force of the wind, it is instant death.

The above method is the only one which they take to avoid the effects of this fatal blast; and when it is over, they get up and look round them for their companions; and if they see any one lying motionless, they take hold of an arm or leg, and pull and jerk it with some force; and if the limb thus agitated separates from the body, it is a certain sign that the wind has had its full effect; but if, on the contrary, the arm or leg does not come away, it is a sure sign there is life remaining, although to every outward appearance the person is dead; and in that case they immediately cover him or them with clothes, and administer some warm diluting liquor to cause a perspiration, which is certainly but slowly brought about.

The Arabs themselves can say little or nothing about the nature of this wind, only that it always leaves behind it a very strong sulphureous smell, and that the air at these times is quite clear, except about the horizon, in the north-west quarter, before observed, which gives warning of its approach. We have not been able to learn whether the dead bodies are scorched, or dissolved into a kind of gelatinous substance; but from the stories current about them, there has been frequent reason to believe the latter; and in that case such fatal effects may be attributed rather to a noxious vapour than to an absolute and excessive heat. The story of its going to the gates of *Bagdad* and no farther may be reasonably enough accounted for, if the effects are attributed to a poisonous vapour, and not an excessive heat. The above mentioned wind, Samiel, is so well known in the neighbourhood of *Bagdad* and *Bassora*, that the very children speak of it with dread.

SAMOGITIA, a province of Poland, bounded on the north by Courland, on the east by Lithuania, on the west by the Baltic Sea, and on the south by Regal Prussia, being about 175 miles in length and 125 in breadth. It is full of forests and very high mountains, which feed a great number of cattle, and produce a large quantity of honey. There are also very active horses, in high esteem. The inhabitants are clownish, but honest; and they will not allow a young woman to go out in the night without a candle in her hand and two bells at her girdle. *Rossenna* and *Wormia* are the principal places.

SAMOIEDA, a country of the Russian empire, between Asiatic Tartary and Archangel, lying along the sea-coast as far as Siberia. The inhabitants are so rude a people that they can hardly pretend to humanity, except in their face and figure: they have little understanding, and in many things resemble brutes, for they will eat carrion of every kind. They travel on the snow on sledges, drawn with an animal like a reindeer, but with the horns of a stag. Those who have seen them affirm, that no people on the earth make such shocking figures: their stature is short; their shoulders

Samiels

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Samoieda.

Does: Voy-
age from
England to
India in
1754.

Samolus
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Sampan.

and faces are broad, with flat broad noses, great blubber hanging lips, and staring eyes; their complexion is dark, their hair long and as black as pitch, and they have very little beards; and it is said that all the Samoied women have black nipples. If they have any religion at all, it is idolatry, though there has been some attempts of late to convert them. Their huts are made of birch bark sewed together, which is laid upon stakes set in the ground, and at the top is a hole to let out the smoke; the fire is made in the middle, and both men and women lie naked round them all night.—They have little regard to the nearness of kin, and take as many wives as they can keep: their only employment is hunting and fishing.

SAMOLUS, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 21st order, *Precie*. The corolla is salver-shaped, the stamina surrounded by small scales at its throat. The capsule is unilocular inferior.

SAMOS (anc. geog.), an island at no great distance from the promontory Mycale, on the continent of the Hither Asia, and opposite to Ephesus; the distance only seven stadia (Strabo); a free island, in compass 87 miles (Pliny); or 100 (Isidorus): with a cognominal town (Ptolemy, Horace); famous for the worship and a temple of Juno, with a noted asylum (Virgil, Strabo, Tacitus); and hence their coin exhibited a peacock (Athenæus): The country of Pythagoras, who, to avoid the oppression of tyrants, retired to Italy, the land of freedom. Samos, though not so happy in producing wine, which Strabo wonders at, all the adjoining islands yielding a generous sort, yet abounds in all the necessaries of life. The *Vasa Samia*, among earthen ware, were held in high repute. *Samii*, the people (Ovid).—The island is now in the hands of the Turks. It is about 32 miles in length, and 22 in breadth, and extremely fertile. The inhabitants live at their ease, their taxation by the Turks being moderate. The women are very nasty and ugly, and they never shift above once a month. They are clothed in the Turkish manner, except a red coif, and their hair hanging down their backs, with plates of silver or black-tin fastened to the ends.—They have abundance of melons, lentils, kidney-beans, and excellent muscadine grapes. They have white figs four times as big as the common sort, but not so well tasted. Their silk is very fine, and their honey and wax admirable; besides which, their poultry are excellent: they have iron mines, and most of the soil is of a rusty colour: they have also emery stone, and all the mountains are of white marble. The inhabitants are about 12,000, who are almost all Greeks; and the monks and priests occupy most part of the island. They have a bishop who resides at Cora. See **POLYCRATES**.

Ships's Voy
age to China
and the East
Indies.

SAMPAN, is a Chinese boat without a keel, looking almost like a trough; they are made of different dimensions, but are mostly covered. These boats are as long as sloops, but broader, almost like a baking trough; and have at the end one or more decks of bamboo sticks: the cover or roof is made of bamboo sticks, arched over in the shape of a grater; and may be raised or lowered at pleasure: the sides are made of boards, with little holes, with shutters instead of win-

dows: the boards are fastened on both sides to posts, which have notches like steps on the insides, that the roof may be let down, and rest on them: on both ends of the deck are commonly two little doors, at least there is one at the hindmost end. A fine white smooth carpet spread up as far as the boards makes the floor, which in the middle consists of loose boards; but this carpet is only made use of to sleep on. As these boats greatly differ from ours in shape, they are likewise rowed in a different manner: for two rowers, posting themselves at the back end of the sampan, work it forwards very readily by the motion of two oars; and can almost turn the vessel just as they please: the oars, which are covered with a little hollow quadrangular iron, are laid on iron swivels, which are fastened in the sides of the sampan: at the iron the oars are pieced, which makes them look a little bent: in common, a rower sits before with a short oar; but this he is forced to lay aside when he comes near the city, on account of the great throng of sampans; and this inconvenience has confirmed the Chinese in their old way of rowing. Instead of pitch, they make use of a cement like our putty, which we call *chinam*, but the Chinese call it *kiang*. Some authors say that this cement is made of lime and a resin exuding from the tree *tong yea*, and bamboo ockam.

Sampan
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Samuel.

Besides a couple of chairs, they have the following furniture: two oblong tables or boards on which some Chinese characters are drawn; a lantern for the night-time, and a pot to boil rice in. They have also a little cover for their household god, decorated with gilt paper and other ornaments: before him stands a pot filled with ashes, into which the tapers are put before the idol. The candles are nothing else than bamboo chips, to the upper end of which saw-dust of sandal-wood is stuck on with gum. These tapers are everywhere lighted before the idols in the pagodas, and before the doors in the streets; and, in large cities, occasion a smoke very pernicious to the eyes. Before this idol stands some *samso*, or Chinese brandy, water, &c. We ought to try whether the Chinese would not like to use juniper-wood instead of sandal-wood; which latter comes from Surat, and has almost the same smell with juniper.

SAMSON, one of the judges of Israel, memorable for his supernatural strength, his victories over the Philistines, and his tragical end, as related in the book of *Judges*.

SAMSON'S Post, a sort of pillar erected in a ship's hold, between the lower deck and the keelson, under the edge of a hatchway, and furnished with several notches that serve as steps to mount or descend, as occasion requires. This post being firmly driven into its place, not only serves to support the beam and fortify the vessel in that place, but also to prevent the cargo or materials contained in the hold, from shifting to the opposite side, by the rolling of the ship in a turbulent and heavy sea.

BOOKS OF SAMUEL, two canonical books of the Old Testament, as being usually ascribed to the prophet Samuel.

The books of Samuel and the books of Kings are a continued history of the reigns of the kings of Israel and Judah; for which reason the books of Samuel are likewise styled *the first and second books of Kings*. Since
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*Samyda,
Sana.*

the first 24 chapters contain all that relates to the History of Samuel, and the latter part of the first book and all the second include the relation of events that happened after the death of that prophet, it has been supposed that Samuel was author only of the first 24 chapters, and that the prophets Gad and Nathan finished the work. The first book of Samuel comprehends the transactions under the government of Eli and Samuel, and under Saul the first king; and also the acts of David while he lived under Saul; and is supposed to contain the space of 101 years. The second book contains the history of about 40 years, and is wholly spent in relating the transactions of David's reign.

SAMYDA, in botany: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking with those of which the order is doubtful. The calyx is quinquepartite and coloured; there is no corolla; the capsule in the inside resembles a berry, is trivalved and unilocular; the seeds nestling.

*Niebuhr's
Travels by
Heron.*

SANA, or **SANAA**, a large, populous, and handsome town of Asia, capital of Arabia Felix, is situated in Proper Yemen, at the foot of mount Nikkum, on which are still to be seen the ruins of a castle, which the Arabs suppose to have been built by Shem. Near this mountain stands the castle; a rivulet runs upon the other side; and near it is the Bultan el Metwokkal, a spacious garden, which was laid out by Imam Metwokkal, and has been embellished with a fine garden by the reigning imam. The walls of the city, which are built of bricks, exclude this garden, which is inclosed within a wall of its own. The city, properly so called, is not very extensive: one may walk round it all in an hour. The city-gates are seven. Here are a number of mosques, some of which have been built by Turkish pachas. Sana has the appearance of being more populous than it actually is; for the gardens occupy a part of the space within the walls. In Sana are only 12 public baths; but many noble palaces, three of the most splendid of which have been built by the reigning Imam. The palace of the late Imam El Manzor, with some others, belong to the royal family, who are very numerous.

The Arabian palaces are built in a style of architecture different from ours. The materials are, however, burnt bricks, and sometimes even hewn stones; but the houses of the common people are of bricks which have been dried in the sun. There are no glass windows, except in one palace, near the citadel. The rest of the houses have, instead of windows, merely shutters, which are opened in fair weather, and shut when it is foul. In the last case, the house is lighted by a round wicket, fitted with a piece of Muscovy glass; some of the Arabians use small panes of stained glass from Venice.

At Sana, and in the other cities of the East, are great simseras or caravanferas for merchants and travellers. Each different commodity is sold in a separate market. In the market for bread, none but women are to be seen; and their little shops are portable. The several classes of mechanics work, in the same manner, in particular quarters in the open street. Writers go about with their desks, and make out briefes, copy-books, and instruct scholars in the art of writing, all

at the same time. There is one market where old clothes are taken in exchange for new.

Wood for the carpenter's purpose is extremely dear through Yemen; and wood for the fire at Sana is no less so. All the hills near the city are bleak and bare, and wood is therefore to be brought hither from the distance of three days journey; and a camel's burthen commonly costs two crowns. This scarcity of wood is particularly supplied by the use of a little pit-coal. Peats are burnt here; but they are so bad, that straw must be intermixed to make them burn.

Fruits are, however, very plenteous at Sana. Here are more than 20 different species of grapes, which, as they do not all ripen at the same time, continue to afford a delicious refreshment for several months. The Arabs likewise preserve grapes, by hanging them up in their cellars, and eat them almost through the whole year. The Jews make a little wine, and might make more if the Arabs were not such enemies to strong liquors. A Jew convicted of conveying wine into an Arab's house is severely punished; nay, the Jews must even use great caution in buying and selling it among themselves. Great quantities of grapes are dried here; and the exportation of raisins from Sana is considerable. One sort of these grapes are without stones, and contains only a soft grain, the presence of which is not perceptible in eating the raisin.

In the castle, which stands on a hill, are two palaces. "I saw (says Niebuhr) about it some ruins of old buildings, but, notwithstanding the antiquity of the place, no remarkable inscriptions. There is the mint, and a range of prisons for persons of different ranks. The reigning Imam resides in the city; but several princes of the blood-royal live in the castle. The battery is the most elevated place about these buildings; and there I met with what I had no expectation of, a German mortar, with this inscription, *Jerg Selos Gofmick*, 1513. I saw also upon the same battery seven iron cannons, partly buried in the sand, and partly set upon broken carriages. These seven small cannons, with six others near the gates, which are fired to announce the return of the different festivals, are all the artillery of the capital of Yemen."

SANADON (Noël Etienne), a Jesuit, was born at Rouen in 1676, and was a distinguished professor of humanity at Caen. He there became acquainted with Huet bishop of Avranches, whose taste for literature and poetry was similar to his own. Sanadon afterwards taught rhetoric at the university of Paris, and was entrusted with the education of the prince of Conti, after the death of Du Morceau. In 1728 he was made librarian to Louis XIV. an office which he retained to his death. He died on the 21st September 1733, in the 58th year of his age.

His works are, 1. Latin Poems, in 12mo, 1715, and reprinted by Barbou, in 8vo, 1754. His style possesses the graces of the Augustan age. His language is pure and nervous; his verses are harmonious, and his thoughts are delicate and well chosen; but sometimes his imagination flags. His Latin poems consist of Odes, Elegies, Epigrams, and others, on various subjects. 2. A translation of Horace, with Remarks, in 2 vols 4to, printed at Paris in 1727; but the best edition of this work was printed at Amsterdam in 1735, in 8 vo & 12m, in which are also inserted the

*Sana.
Sanadon.*

Sanballat, versions and notes of M. Dacier. Sanadon translated with elegance and taste; but he has not preserved the sublimity of the original in the odes, nor the energy and precision in the epistles and satires. In general, his version is rather a paraphrase than a faithful translation. Learned men have justly censured him for the liberty which he has taken in making considerable changes in the order and structure of the odes. He has also given offence by his uncouth orthography. 3. A Collection of Discourses delivered at different times, which afford strong proofs of his knowledge of oratory and poetry. 4. A book entitled *Prieres et Instructions Chretiennes*.

SANBALLAT, the chief or governor of the Cutrites or Samaritans, was always a great enemy to the Jews. He was a native of Horon, or Horonaim, a city beyond Jordan, in the country of the Moabites. He lived in the time of Nehemiah, who was his great opponent, and from whose book we learn his history. There is one circumstance related of him which has occasioned some dispute among the learned; and the state of the question is as follows: When Alexander the Great came into Phœnicia, and sat down before the city of Tyre, Sanballat quitted the interests of Darius king of Persia, and went at the head of 8000 men to offer his service to Alexander. This prince readily entertained him, and being much solicited by him, gave him leave to erect a temple upon mount Gerizim, where he constituted his son-in-law Manasseh the high-priest. But this story carries a flagrant anachronism: for 120 years before this, that is, in the year of the world 3550, Sanballat was governor of Samaria; wherefore the learned Dr Prideaux (in his Connection of the Histories of the Old and New Testament) supposes two Sanballats, and endeavours to reconcile it to truth and probability, by showing it to be a mistake of Josephus. This author makes Sanballat to flourish in the time of Darius Codomannus, and to build his temple upon mount Gerizim by licence from Alexander the Great; whereas it was performed by leave from Darius Nottus, in the 15th year of his reign. This takes away the difficulty arising from the great age of Sanballat, and brings him to be contemporary with Nehemiah, as the Scripture history requires.

SANCHEZ (François), called in Latin *Sanctius*, was of Las Brocas in Spain, and has been dignified by his own countrymen with the pompous titles of *le Pere de la Langue Latine, et le Docteur de tous les Gens-de-lettres*. He wrote, 1. An excellent treatise intitled *Minerva, or de Causis Lingue Latine*, which was published at Amsterdam in 1714, in 8vo. The authors of the *Portroyal Methode de la Langue Latine* have been much indebted to this work. 2. The Art of Speaking, and the Method of translating Authors. 3. Several other learned pieces on grammar. He died in the year 1600, in his 77th year.

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We must be careful to distinguish him from another François Sanchez, who died at Toulouse in 1632. This last was a Portuguese physician who settled at Toulouse, and, though a Christian, was born of Jewish parents. He is said to have been a man of genius and a philosopher. His works have been collected under the title of *Opera Medica. His juncti sunt tractatus quidam philosophici non insubtiles*. They were printed at Toulouse in 1636.

SANCHONIATHO, a Phenician philosopher and historian, who is said to have flourished before the Trojan war about the time of Semiramis. Of this most ancient writer, the only remains extant are sundry fragments of cosmogony, and of the history of the gods and first mortals, preserved by Eusebius and Theodoret; both of whom speak of Sanchoniatho as an accurate and faithful historian; and the former adds, that his work, which was translated by Philo-Byblius from the Phenician into the Greek language, contains many things relating to the history of the Jews which deserve great credit, both because they agree with the Jewish writers, and because the author received these particulars from the annals of Hierombalus, a priest of the god Jao.

Several modern writers, however, of great learning, have called in question the very existence of Sanchoniatho, and have contended with much plausibility, that the fragments which Eusebius adopted as genuine upon the authority of Porphyry, were forged by that author, or the pretended translator Philo, from enmity to the Christians, and that the Pagans might have something to show of equal antiquity with the books of Moses. These opposite opinions have produced a controversy that has filled volumes, and of which our limits would hardly admit of an abstract. We shall therefore in few words state what to us appears to be the truth, and refer such of our readers as are desirous of fuller information to the works of the authors (A) mentioned at the bottom of the page.

The controversy respecting Sanchoniatho resolves itself into two questions: 1. Was there in reality such a writer? 2. Was he of the very remote antiquity which his translator claims for him?

That there was really such a writer, and that the fragments preserved by Eusebius are indeed parts of his history interpolated perhaps by the translator (B), we are compelled to believe by the following reasons. Eusebius, who admitted them into his work as authentic, was one of the most learned men of his age, and a diligent searcher into antiquity. His conduct at the Nicene council shows, that on every subject he thought for himself, neither biased by authority to the one side, nor carried over by the rage of innovation to the other. He had better means than any modern writer can have of satisfying himself with respect to the authenticity of a very extraordinary work, which had then but lately been

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been

(A) Bochart, Scaliger, Vossius, Cumberland, Dodwell, Stillingfleet, Mosheim's Cudworth, and Warburton.

(B) Of this there are indeed several proofs. Philo makes Sanchoniatho speak of *Byblus* as the most ancient city of Phenicia, which, in all probability, it was not. We read in the book of Judges of *Berith* or *Berytus*, the city where Sanchoniatho himself lived; but not of *Byblus*, which was the native city of Philo, and to which he is therefore partial. He makes him likewise talk of the Greeks at a period long before any of the Grecian states were known or probably peopled.

Sanchoniatho.

been translated into the Greek language, and made generally known; and there is nothing in the work itself, or at least in those parts of it which he has preserved, that could induce a wise and good man to obtrude it upon the public as genuine, had he himself suspected it to be spurious. Too many of the Christian fathers were indeed very credulous, and ready to admit the authenticity of writings without duly weighing the merits of their claim; but then such writings were always believed to be favourable to the Christian cause, and inimical to the cause of Paganism. That no man of common sense could suppose the cosmogony of Sanchoniatho favourable to the cause of revealed religion, a farther proof cannot be requisite than what is furnished by the following extract.

"He supposeth, or affirms, that the principles of the universe was a dark and windy air, or a wind made of dark air, and a turbulent evening *chaos*; and that these things were boundless, and for a long time had no bound or figure. But when this wind fell in love with his own principles, and a mixture was made, that mixture was called *desire* or *cupid* (*πρωτος*).

"This mixture completed, was the beginning of the (*κτιστος*) making of all things. But that wind did not know its own production; and of this, with that wind, was begotten *Mot*, which some call *Mud*, others the putrefaction of a watery mixture. And of this came all the seed of this building, and the generation of the universe.

"But there were certain animals, which had no sense, out of which were begotten intelligent animals, and were called *Zophesmin*, that is, the spies or overseers of Heaven; and were formed alike in the shape of an egg. Thus shone out *Mot*, the sun and the moon, the less and the greater stars.

"And the air shining thoroughly with light, by its fiery influence on the sea and earth, winds were begotten, and clouds and great defluxions of the heavenly waters. And when all these things first were parted, and were separated from their proper place by the heat of the sun, and then all met again in the air, and dashed against one another, and were broken to pieces; whence thunders and lightnings were made: and at the stroke of these thunders the fore-mentioned intelligent animals were awakened, and frightened with the sound; and male and female stirred in the earth and in the sea: This is their generation of animals.

"After these things our author (Sanchoniatho) goes on saying: These things are written in the *Cosmogony* of *Taautus*, and in his memoirs: and out of the conjectures, and surer natural signs which his mind saw, and found out, and wherewith he hath enlightened us.

"Afterwards declaring the names of the winds, north and south and the rest, he makes this epilogue. 'But these first men consecrated the plants shooting out of the earth, and judged them gods, and worshipped them; upon whom they themselves lived, and all their posterity and all before them: to these they made their meat and drink offerings.' Then he concludes: 'these were the devices of worship agreeing with the weakness and want of boldness in their minds.'

Let us suppose Eusebius to have been as weak and credulous as the darkest monk in the darkest age of Europe, a supposition which no man will make who knows any thing of the writings of that eminent histo-

rian; what could he see in this senseless jargon, which even a dreaming monk would think of employing in support of Christianity? Eusebius calls it, and calls it truly, direct atheism; but could he imagine that an ancient system of atheism would contribute so much to make the Pagans of his age admit as divine revelations the books of the Old and New Testaments, that he should be induced to adopt, without examination, an impudent forgery not 200 years old as genuine remains of the most remote antiquity?

If this Phenician cosmogony be a fabrication of Porphyry, or of the pretended translator, it must surely have been fabricated for some purpose; but it is impossible for us to conceive what purpose either of these writers could have intended to serve by forging a system so extravagantly absurd. Porphyry, though an enemy to the Christians, was not an atheist, and would never have thought of making an atheist of him whom he meant to obtrude upon the world as the rival of Moses. His own principles were those of the Alexandrian Platonists; and had he been the forger of the works which bear the name of Sanchoniatho, instead of the incomprehensible jargon about *dark wind*, *evening chaos*, *Mot*, the *overseers of heaven in the shape of an egg*, and *animation proceeding from the sound of thunder*, we should doubtless have been amused with refined speculations concerning the operations of the *Demiurgus* and the other persons in the Platonic Triad. See PLATONISM and PORPHYRY.

Father Simon of the oratory imagines * that the * *Bib. Crit.* purpose for which the history of Sanchoniatho was vol. i. p. 140. forged, was to support Paganism, by taking from it its mythology and allegories, which were perpetually objected to it by the Christian writers; but this learned man totally mistakes the matter. The primitive Christians were too much attached to allegories themselves to rest their objections to Paganism on such a foundation: what they objected to that system was the immoral stories told of the gods. To this the Pagan priests and philosophers replied, that these stories were only *mythologic allegories*, which veiled all the great truths of Theology, Ethics, and Physics. The Christians said, this could not be; for that the stories of the gods had a substantial foundation in fact, these gods being only dead men deified, who, in life, had like passions and infirmities with other mortals. This then was the objection which the forger of the works of Sanchoniatho had to remove, if he really forged them in support of Paganism; but, instead of doing so, he gives the genealogy and history of all the greater gods, and shows, that they were men deified after death for the exploits, some of them grossly immoral, which they had performed in this world. We have elsewhere (POLYTHEISM, n° 17.) given his account of the deification of *Chryfor*, and *Ouranos*, and *Ge*, and *Hyppistos*, and *Muth*; but our readers may not perhaps be ill pleased to accompany him through the history of *Ouranos* and *Cronus*, two of his greatest gods; whence it will appear how little his writings are calculated to support the tottering cause of Paganism against the objections which were then urged to it by the Christian apologists.

"Ouranos (says he), taking the kingdom of his father, married *Ge* his sister, and by her had four sons: *Ius*, who is called *Cronus*; *Betylus*; *Dagon*, who is *Siton*, or the god of corn; and *Atlas*. But by other wives

Ouranos

Sanchoniatho. Ouranos had much issue, wherefore Ge being grieved at it and jealous, reproached Ouranos, so as they parted from each other. But Ouranos, though he parted from her, yet by force invading her; and lying with her when he lifted, went away again; and he also attempted to kill the children he had by her. Ge also often defended or avenged herself, gathering auxiliary powers unto her. But when Cronus came to man's age, using Hermes Trismegistus as his counsellor and assistant (for he was his secretary), he opposed his father Ouranos, avenging his mother. But Cronus had children, Persephone and Athena; the former died a virgin, but by the counsel of the latter Athena, and of Hermes, Cronus made of iron a scimitar and a spear. Then Hermes, speaking to the assistants of Cronus with enchanting words, wrought in them a keen desire to fight against Ouranos in the behalf of Ge; and thus Cronus warring against Ouranos, drove him out of his kingdom, and succeeded in the imperial power or office. In the fight was taken a well-beloved concubine of Ouranos big with child. Cronus gave her in marriage to Dagon, and she brought forth at his house what she had in her womb by Ouranos, and called him *Demaroon*. After these things Cronus builds a wall round about his house, and founds *Byblus* the first city in Phenicia. Afterwards Cronus, suspecting his own brother Atlas, with the advice of Hermes, throwing him into a deep hole of the earth, there buried him, and having a son called *Sadid*, he dispatched him with his own sword, having a suspicion of him, and deprived his own son of life with his own hand. He also cut off the head of his own daughter, so that all the gods were amazed at the mind of Cronus. But in process of time, Ouranos being in flight, or banishment, sends his daughter *Astarte*, with two other sisters *Rhea* and *Dione*, to cut off Cronus by deceit, whom Cronus taking, made wives of these sisters. Ouranos, understanding this, sent *Eimarmene* and *Hore*, *Fate* and *Beauty*, with other auxiliaries, to war against him: but Cronus, having gained the affections of these also, kept them with himself. Moreover, the god Ouranos devised *Betulia*, contriving stones that moved as having life. But Cronus begat on *Astarte* seven daughters called *Titanides* or *Artemides*; and he begat on *Rhea* seven sons, the youngest of whom, as soon as he was born, was consecrated a god. Also by *Dione* he had daughters, and by *Astarte* moreover two sons, *Pothos* and *Eros*, i. e. *Cupid* and *Love*. But *Dagon*, after he had found out bread, corn, and the plough, was called *Zeus Arotrius*. To *Sydyce*, or the just, one of the *Titanides* bare *Asclepius*. Cronus had also in *Peræa* three sons, 1. *Cronus* his father's namesake. 2. *Zeus Belus*. 3. *Apollo*."

Is it conceivable, that a writer so acute as Porphyry, or indeed that any man of common sense either in his age or in that of Philo, would forge a book filled with such stories as these, in order to remove the Christian objections to the immoral characters of the Pagan divinities? The very supposition is impossible to be made. Nor let any one imagine that *Sanchoniatho* is here writing allegorically, and by his tales of *Ouranos*, and *Ge*, and *Cronus*, is only personifying the *heaven*, the *earth*, and *time*. On the contrary, he assures us, that *Ouranos*, or *Epigeus*, or *Autochthon* (for he gives him all these names), was the son of one *Eliaun* or *Hypsisos*, who dwelt about *Byblus*, and that from him the ele-

ment which is over us was called *heaven*, on account of its excellent beauty, as the earth was named *Ge* after his sister and wife. And his translator is very angry * with the Neoteric Greeks, as he calls them, because that, "by a great deal of force and straining, they laboured to turn all the stories of the gods into allegories and physical discourses." This proves unanswerably, that the author of this book, whoever he was, did not mean to veil the great truths of religion under the cloak of mythologic allegories; and therefore, if it was forged by Porphyry in support of Paganism, the forger so far mistook the state of the question between him and his adversaries, that he contrived a book, which, if admitted to be ancient, totally overthrew his own cause.

The next thing to be inquired into with respect to *Sanchoniatho* is his antiquity. Did he really live and write at so early a period as Porphyry and Philo pretend? We think he did not; and what contributes not a little to confirm us in our opinion, is that mark of national vanity and partiality, common to after-times, in making the sacred mysteries of his own country original, and conveyed from Phenicia into Egypt. This, however, furnishes an additional proof that Porphyry was not the forger of the work; for he well knew that the mysteries had their origin in Egypt (see MYSTERIES), and would not have fallen into such a blunder. He is guilty, indeed, of a very great anachronism, when he makes *Sanchoniatho* contemporary with *Semiramis*, and yet pretends that what he writes of the Jews is compiled from the records of *Hierombalus* the priest of the god *Jao*; for *Bochart* has made it appear in the highest degree probable †, that *Hierombalus* or *Jeromb-baal* is the *Jerub-baal* or *Gideon* of scripture.

Between the reign of *Semiramis* and the Trojan war a period elapsed of near 800 years, whereas *Gideon* flourished not above seventy years before the destruction of *Troy*. But supposing *Sanchoniatho* to have really consulted the records of *Gideon*, it by no means follows that he flourished at the same period with that judge of *Israel*. He speaks of the building of *Tyre* as an ancient thing, while our best chronologers ‡ place it in the time of *Gideon*. Indeed, were we certain that any writings had been left by that holy man, we should be obliged to conclude, that a large tract of time had intervened between the death of their author and their falling into the hands of *Sanchoniatho*; for, surely, they could not, in a short period, have been so completely corrupted as to give any countenance to his impious absurdities. His atheistic cosmogony he does not indeed pretend to have got from the annals of the priest of *Jao*, but from records which were deposited in his own town of *Berytus* by *Thoth* a Phenician philosopher, who was afterwards made king of Egypt. But surely the annals of *Gideon*, if written by himself, and preserved pure to the days of *Sanchoniatho*, must have contained so many truths of the Mosaic religion, as must have prevented any man of sense from adopting so impossible a theory as *Thoth's*, though sanctioned by the greatest name of profane antiquity. Stillington indeed thinks it most probable that *Sanchoniatho* became acquainted with the most remarkable passages of the life of *Jerub-baal* from annals written by a Phenician pen. He observes, that immediately after the death of *Gideon*, the *Israelites*, with their usual proneness to idolatry, worshiped *Baal-berith*, or the idol of *Berytus*,

Sanchoniatho.

* *Apud Euseb. Prep. Evang. lib. 1. cap. 6.*

† *Geogr. Sac. p. 2. book 2. lib. 2. cap. 17.*

Scaliger.

Sanchonia-
tho,
Sancroft.

* *De Hist.*
Græc. lib. i.
cap. i.

the town in which Sanchoniatho lived; and from this circumstance he concludes that there must have been such an intercourse between the Hebrews and Berytians, that in process of time the latter people might assume to themselves the Jerub-baal of the former, and hand down his actions to posterity as those of a priest instead of a great commander. All this may be true; but if so, it amounts to a demonstration that the antiquity of Sanchoniatho is not so high by many ages as that which is claimed for him by Philo and Porphyry, though he may still be more ancient, as we think Vossius has proved him to be*, than any other profane historian whose writings have come down to us either entire or in fragments.

But granting the authenticity of Sanchoniatho's history, what, it may be asked, is the value of his fragments, that we should be at any trouble to ascertain whether they be genuine remains of high antiquity, or the forgeries of a modern impostor? We answer, with the illustrious Stillingfleet, that though those fragments contain such absurdities as it would be a disgrace to reason to suppose credible; though the whole cosmogony is the grossest sink of atheism; and though many persons make a figure in the history, whose very existence may well be doubted; yet we, who have in our hands the light of divine revelation, may in this dungeon discover many excellent reliques of ancient tradition, which throw no feeble light upon many passages of holy scripture, as they give us the origin and progress of that idolatry which was so long the opprobrium of human nature. They furnish too a complete confutation of the extravagant chronology of the Chaldeans and Egyptians, and show, if they be genuine, that the world is indeed not older than it is said to be by Moses. We shall conclude the article by earnestly recommending to our readers an attentive perusal of *Cumberland's SANCHONIATHO*.

SANCROFT (William), archbishop of Canterbury, was born at Fressingfield in Suffolk in 1616; and admitted into Emanuel college, Cambridge, in 1633. In 1642 he was elected a fellow; and, for refusing to take the covenant, was ejected from his fellowship. In 1660 he was chosen one of the university preachers; and in 1663 was nominated to the deanry of York. In 1664 he was installed dean of St Paul's. In this station he set himself with unwearied diligence to repair the cathedral, till the fire of London in 1666 employed his thoughts on the more noble undertaking of rebuilding it, toward which he gave 1400*l*. He also rebuilt the deanry, and improved the revenue of it. In 1668 he was admitted archdeacon of Canterbury, on the king's presentation. In 1677, being now prolocutor of the convocation, he was unexpectedly advanced to the archbishopric of Canterbury. In 1678 he was committed to the tower, with six other bishops, for presenting a petition to the king against reading the declaration of indulgence. Upon king James II.'s withdrawing himself, he concurred with the lords in a declaration to the prince of Orange for a free parliament, and due indulgence to the Protestant dissenters. But when that prince and his consort were declared king and queen, his grace refusing to take the oaths to their majesties, he was suspended and deprived. He lived in a very private manner, till he died in 1693. His learning, integrity, and piety, made him an exalted ornament of the church.

He published a volume in 12mo, intitled *Modern Politics*, taken from Machiavel, Borgia, and other choice authors; Familiar Letters to Mr North, an 8vo pamphlet; and three of his sermons were printed together after his death.

SANCTIFICATION, the act of sanctifying, or rendering a thing holy. The reformed divines define sanctification to be an act of God's grace, by which a person's desires and affections are alienated from the world; and by which he is made to die to sin, and to live to righteousness; or, in other words, to feel an abhorrence of all vice, and a love of religion and virtue.

SANCTION, the authority given to a judicial act, by which it becomes legal and authentic.

SANCTORIUS, a most ingenious and learned physician, was a professor in the university of Padua, in the beginning of the 17th century. He contrived a kind of statical chair, by means of which, after estimating the aliments received, and the sensible discharges, he was enabled to determine with great exactness the quantity of insensible perspiration, as well as what kind of victuals and drink increased or diminished it. On these experiments he erected a curious system, which he published under the title of *De medicina statica*; of which we have an English translation by Dr Quincy. Sanctorius published several other treatises, which shewed great abilities and learning.

SANCTUARY, among the Jews, also called *Sanc-tum sanctorum*, or *Holy of holies*, was the holiest and most retired part of the temple of Jerusalem, in which the ark of the covenant was preserved; and into which none but the high-priest was allowed to enter, and that only once a-year, to intercede for the people.

Some distinguish the sanctuary from the *sanctum sanctorum*, and maintain that the whole temple was called the *sanctuary*.

To try and examine any thing by the weight of the sanctuary, is to examine it by a just and equal scale; because, among the Jews, it was the custom of the priests to keep stone weights, to serve as standards for regulating all weights by, though these were not at all different from the royal or profane weights.

SANCTUARY, in the Romish church, is also used for that part of the church in which the altar is placed, encompassed with a rail or ballustrade.

SANCTUARY, in our ancient customs, the same with ASYLUM.

SAND, in natural history, a genus of fossils, the characters of which are, that they are found in minute concretions; forming together a kind of powder, the genuine particles of which are all of a tendency to one determinate shape, and appear regular though more or less complete concretions; not to be dissolved or disunited by water, or formed into a coherent mass by means of it, but retaining their figure in it; transparent, vitrifiable by extreme heat, and not dissoluble in nor effervescent with acids. Sands are subject to be variously blended, both with homogeneous and heterogeneous substances, as that of talks, &c. and hence, as well as from their various colours, are subdivided into, 1. White sands, whether pure or mixed with other arenaceous or heterogeneous particles; of all which there are several species, differing no less in the fineness of their particles than in the different degrees of colour, from a bright and shining white,

white, to a brownish, yellowish, greenish, &c. white.
 2. The red and reddish sands, both pure and impure.
 3. The yellow sands, whether pure or mixed, are also very numerous. 4. The brown sands, distinguished in the same manner. 5. The black sands, whereof there are only two species, viz. a fine shining greyish-black sand, and another of a fine shining reddish-black colour.
 6. The green kind; of which there is only one known species, viz. a coarse variegated dusky green sand, common in Virginia.

Sand is of great use in the glass-manufacture; a white kind of sand being employed for making of the white glass, and a coarse greenish-looking sand for the green glass.

In agriculture, it seems to be the office of sand to make unctuous earths fertile, and fit to support vegetables, &c. For earth alone, we find, is liable to coalesce, and gather into a hard coherent mass, as appears in clay; and being thus embodied, and as it were glued together, is no way disposed to nourish vegetables. But if such earth be mixed with sand, its pores are thereby kept open, and the earth itself loose, so as thus to give room for the juices to ascend, and for plants to be nourished thereby. A vegetable planted only in sand, or in a fat glebe, or in earth, receives little growth or increase; but a mixture of both renders the mass fertile. In effect, earth is in some measure made organical by means of sand; pores and spaces, something analogous to vessels, being thereby maintained, by which the juices may be conveyed, prepared, digested, circulated, and at length discharged. Common sand is, therefore, a very good addition, by way of manure, to all sorts of clay-lands; it warms them, and makes them more open and loose.

SAND-Bags, in the art of war. See *SACKS of Earth*.

SAND-Eel, in ichthyology. See *AMMODYTES*.

SAND-Floods, a name given to the flowing of sand so common in the deserts of Arabia. Mr Bruce gives the following accurate description of some that he saw in travelling thro' that long and dreary desert. "At one o'clock (says he) we alighted among some acacia-trees at Waadi el Halboub, having gone twenty-one miles. We were here at once surprised and terrified by a sight surely one of the most magnificent in the world. In that vast expanse of desert from west and to north-west of us, we saw a number of prodigious pillars of sand at different distances, at times moving with great celerity, at others stalking on with a majestic slowness: at intervals we thought they were coming in a few minutes to overwhelm us; and small quantities of sand did actually more than once reach us. Again they would retreat so as to be almost out of sight, their tops reaching to the very clouds. There the tops often separated from the bodies; and these, once disjoined, dispersed in the air, and did not appear more. Sometimes they were broken near the middle, as if struck with a large cannon shot. About noon they began to advance with considerable swiftness upon us, the wind being very strong at north. Eleven of them ranged alongside of us about the distance of three miles. The greatest diameter of the largest appeared to me at that distance as if it would measure ten feet. They retired from us with a wind at south-east, leaving an impression upon my mind to which I can give no name, though surely one ingredient in it was fear, with a considerable deal

of wonder and astonishment. It was in vain to think of flying, the swiftest horse or fastest sailing ship could be of no use to carry us out of this danger; and the full persuasion of this rivetted me as if to the spot where I stood, and let the camels gain on me so much in my state of lameness, that it was with some difficulty I could overtake them.

"The same appearance of moving pillars of sand presented themselves to us this day in form and disposition like those we had seen at Waadi Halboub, only they seemed to be more in number and less in size. They came several times in a direction close upon us, that is, I believe, within less than two miles. They began immediately after sun-rise, like a thick wood, and almost darkened the sun: his rays shining through them for near an hour, gave them an appearance of pillars of fire. Our people now became desperate: the Greek shrieked out, and said it was the day of judgment. Ismael pronounced it to be hell, and the Tucorories, that the world was on fire. I asked Idris if ever he had before seen such a sight? He said he had often seen them as terrible, though never worse; but what he feared most was that extreme redness in the air, which was a sure preface of the coming of the simoom." See *SIMOOM*.

The flowing of sand, though far from being so tremendous and hurtful as in Arabia, is of very bad consequences in this country, as many valuable pieces of land have thus been entirely lost; of which we give the following instances from Mr Pennant, together with a probable means of preventing them in future. "I have more than once (says he), on the eastern coasts of Scotland, observed the calamitous state of several extensive tracts, formerly in a most flourishing condition, at present covered with sands, unstable as those of the deserts of Arabia. The parish of Fuvie, in the county of Aberdeen, is now reduced to two farms, and above L. 500 a-year lost to the Errol family, as appears by the oath of the factor in 1600, made before the court of session, to ascertain the minister's salary. Not a vestige is to be seen of any buildings, unless a fragment of the church.

"The estate of Coubin, near Forres, is another melancholy instance. This tract was once worth L. 300 a-year, at this time overwhelmed with sand. This strange inundation was still in motion in 1769, chiefly when a strong wind prevailed. Its motion is so rapid, that I have been assured, that an apple-tree has been so covered with it in one season, that only the very summit appeared. This distress was brought on about ninety years ago, and was occasioned by the cutting down some trees, and pulling up the bent or star which grew on the sand-hills; which at last gave rise to the act of 15 George II. c. 33. to prohibit the destruction of this useful plant.

"I beg leave to suggest to the public a possible means of putting a stop to these destructive ravages. Providence hath kindly formed this plant to grow only in pure sand. Mankind was left to make, in after-times, an application of it suitable to their wants. The sand-hills, on a portion of the Flintshire shores, in the parish of Llanala, are covered with it naturally, and kept firm in their place. The Dutch perhaps owe the existence of part at least of their country to the sowing of it on the *mobile solum*, their sand-banks.

"My humane and amiable friend, the late Benjamin Stillingfleet,

Sand.

Sand.

Stillingfleet, Esq; recommended the sowing of this plant on the sandy wilds of Norfolk, that its matted roots might prevent the deluges of sand which that country experiences. It has been already remarked, that wheresoever this plant grows the salutary effects are soon observed to follow. A single plant will fix the sand, and gather it into a hillock; these hillocks, by the increase of vegetation, are formed into larger, till by degrees a barrier is made often against the encroachments of the sea; and might as often prove preventative of the calamity in question. I cannot, therefore, but recommend the trial to the inhabitants of many parts of North Britain. The plant grows in moist places near the sea, and is known to the Highlanders by the name of *murab*; to the English by that of *beet-flar*, *mat-grass*, or *marram*. Linnæus calls it *arundo arenaria*. The Dutch call it *belm*. This plant hath stiff and sharp-pointed leaves, growing like a rush, a foot and a half long; the roots both creep and penetrate deeply into their sandy beds: the stalk bears an ear five or six inches long, not unlike rye; the seeds are small, brown, and roundish. By good fortune, as old Gerard observes, no cattle will eat or touch this vegetable, allotted for other purposes, subservient to the use of mankind."

SAND-Piper, in ornithology. See TRINGA.

SAND-Stone, a genus of stones belonging to the order of saxa; and including all those which consist of such minute particles that they cannot easily be discerned by the eye. The species enumerated by Cronstedt are,

1. Those cemented by a clay, of which there are two varieties; one with porcelain clay, the other with common clay. The former is met with in Sweden under the stratum of coal in a coal-mine in the province of Shone, and is very hard and refractory in the fire; the other is found in the island of Gothland.

2. With lime, resembling mortar made with coarse sand. There are two varieties, one consisting of transparent grey-coloured grains of quartz and white limestone, the other of a loose texture, hardening in the air; but having the particles too fine to be visible. The former of these is found in Sweden, the latter in France and Livonia.

3. Sand-stone having its particles bound together by an unknown cement. Of this there are four varieties; 1. Loose; 2. Somewhat hard; 3. Compact; 4. Very hard; all of them found in different parts of Sweden.

4. Cemented by rust of iron, found in the form of loose stones in several places.

Cronstedt informs us that the greatest part of sand-stones consist of quartz and mica, being those substances which most readily admit of granulation without being reduced to powder. Some years ago the Baron de Dietrich showed a singular variety of sand-stone at Paris. It consists of small grains of hard quartz which strike fire with steel united with some micaceous particles. It is flexible and elastic, the flexibility depending on the micaceous part and softness of the gluten with which the particles are cemented. This elastic stone is said to have been found at Brazil, and brought to Germany by his excellency the marquis de Lavradio. There are also two tables of white marble, kept in the palace of Borgheze at Rome, which have the same property. But the sparry particles of their substance, though transparent, are rather soft, and may be easily separated

by the nail. They effervesce with aquafortis, and there is also a small mixture of minute particles of talk or mica.

Sand-stones are of great use in buildings which are required to resist air, water, and fire. Some of them are soft in the quarry, but become hard when exposed to the air. The loose ones are most useful, but the solid and hard ones crack in the fire, and take a polish when used as grindstones. Stones of this kind ought therefore to be nicely examined before they are employed for the usual purposes. Our author observes that the working masons, or stone-cutters, ought to wear a piece of frize or baize before their mouths, to preserve themselves from a consumption which their business is otherwise apt to bring on. Limestone, however, is not observed to have this effect.

To the list of sand-stones Fabroni adds gritstone, of greater or less hardness; mostly of a grey, and sometimes of a yellowish colour, composed of a filiceous and micaceous sand, but rarely of a sparry kind, with greater or lesser particles closely connected with an argillaceous cement. It strikes fire with steel, vitrifies in a strong fire, and is generally indissoluble in acids. It is used for mill-stones, wheat-stones, and sometimes for filtering stones, as well as for building.

SANDAL, in antiquity, a rich kind of slipper worn on the feet by the Greek and Roman ladies, made of gold, silk, or other precious stuff; consisting of a sole, with an hollow at one extreme to embrace the ankle, but leaving the upper part of the foot bare.

SANDAL, is also used for a shoe or slipper worn by the pope and other Romish prelates when they officiate. It is also the name of a sort of slipper worn by several congregations of reformed monks. This last consists of no more than a mere leathern sole, fastened with latches or buckles, all the rest of the foot being left bare. The capuchins wear sandals; the recolects, clogs; the former are of leather, and the latter of wood.

SANDAL-Wood. See SAUNDERS.

SANDARACH, in natural history, a very beautiful native fossil, though too often confounded with the common factitious red arsenic, and with the red matter formed by melting the common yellow orpiment.

It is a pure substance, of a very even and regular structure, is throughout of that colour which our dyers term an *orange scarlet*, and is considerably transparent even in the thickest pieces. But though, with respect to colour, it has the advantage of cinnabar while in the mass, it is vastly inferior to it when both are reduced to powder. It is moderately hard, and remarkably heavy; and, when exposed to a moderate heat, melts and flows like oil: if set on fire, it burns very briskly.

It is found in Saxony and Bohemia, in the copper and silver mines; and is sold to the painters, who find it a very fine and valuable red: but its virtues or qualities in medicine are no more ascertained at this time than those of the yellow orpiment.

Gum-SANDARACH, is a dry and hard resin, usually met with in loose granules, of the bigness of a pea, a horse-bean, or larger; of a pale whitish yellow colour, transparent, and of a resinous smell, brittle, very inflammable, of an acrid and aromatic taste, and diffusing a very pleasant smell when burning. It is produced from

mani-a species of the juniper; (see *JUNIFERUS*.) It flows only from these trees in hot countries: but the natives promote its discharge by making incisions in the bark.

Sandarach is esteemed good in diarrhœas and in hæmorrhages.

The varnish-makers make a kind of varnish of it, by dissolving it in oil of turpentine or linseed, or in spirit of wine.

Pounded SANDARACH. See *POUNCE*.

SANDEMANIANS, in ecclesiastical history, a modern sect that originated in Scotland about the year 1728; where it is at this time distinguished by the name of *Glassites*, after its founder Mr John Glas, who was a minister of the established church in that kingdom; but being charged with a design of subverting the national covenant, and sapping the foundation of all national establishments by the kirk judicatory, was expelled by the synod from the church of Scotland. His sentiments are fully explained in a tract published at that time, intitled, "The Testimony of the King of Martyrs," and preserved in the first volume of his works. In consequence of Mr Glas's expulsion, his adherents formed themselves into churches, conformable in their institution and discipline to what they apprehended to be the plan of the first churches recorded in the New Testament. Soon after the year 1755, Mr Robert Sandeman, an elder in one of these churches in Scotland, published a series of letters addressed to Mr Hervey, occasioned by his Theron and Aspasio; in which he endeavours to show, that his notion of faith is contradictory to the scripture account of it, and could only serve to lead men, professedly holding the doctrines commonly called *Calvinistic*, to establish their own righteousness upon their frames, inward feelings, and various acts of faith. In these letters Mr Sandeman attempts to prove, that faith is neither more nor less than a simple assent to the divine testimony concerning Jesus Christ, recorded in the New Testament; and he maintains, that the word *faith*, or *belief*, is constantly used by the apostles to signify what is denoted by it in common discourse, viz. a persuasion of the truth of any proposition, and that there is no difference between believing any common testimony, and believing the apostolic testimony, except that which results from the nature of the testimony itself. This led the way to a controversy, among those who were called *Calvinists*, concerning the nature of justifying faith; and those who adopted Mr Sandeman's notion of it, and who took the denomination of *Sandemanians*, formed themselves into church order, in strict fellowship with the churches in Scotland, but holding no kind of communion with other churches. The chief opinions and practices in which this sect differs from other Christians, are, their weekly administration of the Lord's Supper; their love-feasts, of which every member is not only allowed but required to partake, and which consist of their dining together at each other's houses in the interval between the morning and afternoon service; their kifs of charity used on this occasion, at the admission of a new member, and at other times, when they deem it to be necessary or proper; their weekly collection before the Lord's Supper, for the support of the poor, and defraying other expenses; mutual exhortation; abstinence from blood and things strangled; washing each other's feet, the precept concerning which, as well as other precepts, they

understand literally; community of goods, so far as that every one is to consider all that he has in his possession and power as liable to the calls of the poor and church; and the unlawfulness of laying up treasures on earth, by setting them apart for any distant, future, and uncertain use. They allow of public and private diversions, so far as they are not connected with circumstances really sinful; but apprehending a lot to be feared, disapprove of playing at cards, dice, &c. They maintain a plurality of elders, pastors, or bishops, in each church; and the necessity of the presence of two elders in every act of discipline, and at the administration of the Lord's Supper. In the choice of these elders, want of learning, and engagements in trade, &c. are no sufficient objection; but second marriages disqualify for the office; and they are ordained by prayer and fasting, imposition of hands, and giving the right hand of fellowship. In their discipline they are strict and severe; and think themselves obliged to separate from the communion and worship of all such religious societies as appear to them not to profess the simple truth for their only ground of hope, and who do not walk in obedience to it. We shall only add, that in every church transaction, they esteem unanimity to be absolutely necessary. From this abstract of the account which they have published of their tenets and practices, it does not seem to be probable that their number should be very considerable.

SANDERS. See *SAUNDERS*.

SANDIVER, a whitish salt, continually cast up from the *metal*, as it is called, whereof glass is made; and, swimming on its surface, is skimmed off.

Sandiver is also plentifully thrown out in the eruptions of volcanoes; some is of a fine white, and others tinged bluish or yellowish.

Sandiver is said to be detergent, and good for foulnesses of the skin. It is also used by gilders of iron.

SANDIX, a kind of minium, or red-lead, made of ceruse, but much inferior to the true minium.

SANDOMIR, a city, the capital of a palatinate of the same name, in Little Poland, on the Vistula. The Swedes blew up the castle in 1656; and here, in 1659, was a dreadful battle between the Tartars and Russians. It is 84 miles south-east of Cracow. Lat. 49. 26. Long. 20. 10.

SANDORICUM, in botany: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking under the 23d order, *Tribillata*. The calyx is quinque-dentate; the petals five, and linear-shaped: the nectarium has ten dentæ, on which the antheræ grow; the fruit is a drupa, and five in number, each of which has one seed. There is only one species, viz. the indicum, a native of Africa and the East Indies.

SANDPU, or **SANPOO**, the vulgar name of one of the most mighty rivers in the world. The name it generally goes by, and by which it is best known, is that of *Burramooter*. Of this most majestic body of waters we have the following very animated account in *Maurice's Indian Antiquities*. "An object equally novel and grand now claims our attention; so novel, as not to have been known to Europeans in the real extent of its magnificence before the year 1765, and so awfully grand, that the astonished geographer, thinking the language of prose inadequate to convey his conception,

Sanders.
||
Sandpu.

Sandpu, has had recourse to the more expressive and energetic
Sandwich. language of poetry: but

— Scarce the Muse herself
Dares stretch her wing o'er this enormous mass
Of rushing waters; to whose dread expanse,
Continuous depth, and wond'rous length of course,
Our floods are rills.

"This stupendous object is the Burrampooter, a word which in Sanscrit signifies *the son of Brahma*; for no meaner origin could be assigned to so wonderful a progeny. This supreme monarch of Indian rivers derives its source from the opposite side of the same mountain from which the Ganges springs, and taking a bold sweep towards the east, in a line directly opposite to the course of that river, washes the vast country of Tibet, where, by way of distinction, it is denominated *Sanpo*, or *the river*. Winding with a rapid current through Tibet, and, for many a league, amidst dreary deserts and regions remote from the habitations of men, it waters the borders of the territory of Lassa, the residence of the grand Lama; and then deviating with a cometary irregularity, from an east to a south-east course, the *mighty wanderer* approaches within 200 miles of the western frontiers of the vast empire of China. From this point its more direct path to the ocean lay through the gulph of Siam; but with a desultory course peculiar to itself, it suddenly turns to the west through Assam, and enters Bengal on the north-east quarter. Circling round the western point of the Garrow mountains, the Burrampooter now takes a southern direction; and for 60 miles before it meets the Ganges, its sister in point of origin, but not its rival in point of magnitude, glides majestically along in a stream which is regularly from four to five miles wide, and but for its freshness, Mr Rennel says, might pass for an arm of the sea. About 40 miles from the ocean these mighty rivers unite their streams; but that gentleman is of opinion that their junction was formerly higher up, and that the accumulation of two such vast bodies of water, scooped out the amazing bed of the Megna lake. Their present conflux is below Luckipoor; and by that confluence a body of fresh running water is produced, hardly equalled, and not exceeded, either in the old or the new hemisphere. So stupendous is that body of water, that it has formed a gulph of such extent as to contain islands that rival our Isle of Wight in size and fertility; and with such resistless violence does it rush into the ocean, that in the rainy season the sea itself, or at least its surface, is perfectly fresh for many leagues out."

SANDWICH, a town of Kent, one of the cinque ports, and which has the title of an earldom. It consists of about 1500 houses, most of them old, and built with wood, though there are a few new ones built with brick and flints. It has three long narrow streets paved, and thirty cross-streets or alleys, with about 6000 inhabitants, but no particular manufactory. The town is walled round, and also fortified with ditches and ramparts; but the walls are much decayed, on account of the harbour being so choaked up with sand that a ship of 100 tons burthen cannot get in. E. Long. 1. 20. N. Lat. 51. 20.

SANDWICH Islands, a group of islands in the South Sea, lying near New Ireland, were among the last discoveries of captain Cook, who so named them in ho-

nour of the Earl of Sandwich, under whose administration these discoveries were made. They consist of eleven islands, extending in latitude from 18. 54. to 22. 15. N. and in longitude from 150. 54. to 160. 24. W. They are called by the natives, OWHYHEE, MOWEE, RANAI, Moretoi, TAHOROWA, WOAHOO, ATOOI, Neebebow, Oeebowa, Morotinne. and TAHOORA, all inhabited except the two last. An account of the most remarkable of which will be found in their alphabetical order, in their proper places in this work. The climate of these islands differs very little from that of the West Indies in the same latitude, though perhaps more temperate; and there are no traces of those violent winds and hurricanes, which render the stormy months in the West Indies so dreadful. There is also more rain at the Sandwich Isles, where the mountainous parts being generally enveloped in a cloud, successive showers fall in the inland parts, with fine weather, and a clear sky, on the sea shore. Hence it is, that few of those inconveniences, to which many tropical countries are subject, either from heat or moisture, are experienced here. The winds, in the winter months, are generally from east-south-east to north-east. The vegetable productions are nearly the same as those of the other islands in this ocean; but the taro root is here of a superior quality. The bread-fruit trees thrive not in such abundance as in the rich plains of Otaheite, but produce double the quantity of fruit. The sugar-canes are of a very unusual size, some of them measuring eleven inches and a quarter in circumference, and having fourteen feet eatable. There is also a root of a brown colour, shaped like a yam, and from six to ten pounds in weight, the juice of which is very sweet, of a pleasant taste, and is an excellent substitute for sugar. The quadrupeds are confined to the three usual sorts, hogs, dogs, and rats. The fowls are also of the common sort; and the birds are beautiful and numerous, though not various. Goats, pigs, and European seeds, were left by captain Cook; but the possession of the goats soon gave rise to a contest between two districts, in which the breed was entirely destroyed. The inhabitants are undoubtedly of the same race that possesses the islands south of the equator; and in their persons, language, customs, and manners, approach nearer to the New Zealanders than to their less distant neighbours, either of the Society or Friendly Islands. They are in general about the middle size, and well made; they walk very gracefully, run nimbly, and are capable of bearing very great fatigue. Many of both sexes have fine open countenances; and the women in particular have good eyes and teeth, with a sweetness and sensibility of look, that render them very engaging. There is one peculiarity, characteristic of every part of these islands, that even in the handsomest faces there is a fulness of the nostril, without any flatness or spreading of the nose. They suffer their beards to grow, and wear their hair after various fashions. The dress of both men and women nearly resemble those of New Zealand, and both sexes wear necklaces of small variegated shells. Tattooing the body is practised by every colony of this nation. The hands and arms of the women are also very neatly marked, and they have the singular custom of tattooing the tip of the tongue. Like the New Zealanders, they have adopted the method of living together in villages, containing from an hundred to two hundred

wich. houses, built pretty closely together, without any order, and having a winding path between them. They are generally flanked, towards the sea, with detached walls, which are meant both for shelter and defence. These walls consist of loose stones, and the inhabitants are very dexterous in shifting them suddenly to such places as the direction of the attack may require. In the sides of the hills, or surrounding eminences, they have also little holes, or caves, the entrance to which is also secured by a fence of the same kind. They serve for places of retreat in cases of extremity, and may be defended by a single person against several assailants. Their houses are of different sizes, some of them being large and commodious, from forty to fifty feet long, and from twenty to thirty broad; while others are mere hovels. The food of the lower class consists principally of fish and vegetables, to which the people of higher rank add the flesh of dogs and hogs. The manner of spending their time admits of little variety. They rise with the sun, and, after enjoying the cool of the evening, retire to rest, a few hours after sun-set. The making of canoes, mats, &c. forms the occupations of the men; the women are employed in manufacturing cloth, and the servants are principally engaged in the plantations and fishing. Their idle hours are filled up with various amusements, such as dancing, boxing, wrestling, &c. Their agriculture and navigation bear a great resemblance to those of the South-sea islands. Their plantations, which are spread over the whole sea-coast, consist of the taro, or eddy-root, and sweet potatoes, with plants of the cloth-trees set in rows. The bottoms of their canoes are of a single piece of wood, hollowed out to the thickness of an inch, and brought to a point at each end. The sides consist of three boards, each about an inch thick, neatly fitted and lashed to the bottom part. Some of their double canoes measure 70 feet in length, three and a half in depth, and twelve in breadth. Their cordage, fish-hooks, and fishing-tackle, differ but little from those of the other islands. Among their arts must not be forgotten that of making salt, which they have in great abundance, and of a good quality. Their instruments of war are spears, daggers, clubs, and slings; and for defensive armour they wear strong mats, which are not easily penetrated by such weapons as theirs. As the islands are not united under one sovereign, wars are frequent among them, which, no doubt, contribute greatly to reduce the number of inhabitants, which, according to the proportion assigned to each island, does not exceed 400,000. The same system of subordination prevails here as at the other islands, the same absolute authority on the part of the chiefs, and the same unresisting submission on the part of the people. The government is likewise monarchical and hereditary. At Owhyhee there is a regular society of priests living by themselves, and distinct in all respects from the rest of the people. Human sacrifices are here frequent; not only at the commencement of a war, or any signal enterprise, but the death of every considerable chief calls for a repetition of these horrid rites. Notwithstanding the irreparable loss in the death of captain Cook, who was here murdered through sudden resentment and violence, they are acknowledged to be of the most mild and affectionate disposition. They live in the utmost harmony and friendship with each other; and in hospitality to strangers they are not exceeded

even by the inhabitants of the Friendly Islands. Their natural capacity seems, in no respect, below the common standard of mankind; and their improvements in agriculture, and the perfection of their manufactures, are certainly adequate to the circumstances of their situation, and the natural advantages which they enjoy.

SANDYS (Sir Edwin), second son of Dr Edwin Sandys archbishop of York, was born about 1561, and educated at Oxford under Mr Richard Hooker, author of the Ecclesiastical Polity. In 1581 he was collated to a prebend in the cathedral of York. He travelled into foreign countries; and, upon his return, grew famous for learning, prudence, and virtue. While he was at Paris, he drew up a tract, published under the title of *Europa Speculum*. In 1602, he resigned his prebend; and, the year following, was knighted by king James I. who employed him in several important affairs. He was dexterous in any great employment, and a good patriot. However, opposing the court with vigour in the parliament held in 1621, he, with Mr Selden, was committed to custody for a month. He died in 1629, having bequeathed 1500 l. to the university of Oxford, for the endowment of a metaphysical lecture.

SANDYS (George), brother of the foregoing Sir Edwin, and youngest son of archbishop Sandys, was born in 1577. He was a most accomplished gentleman; travelled over several parts of Europe and the East; and published a relation of his journey in folio, in 1615. He made an elegant translation of Ovid's *Metamorphoses*; and composed some poetical pieces of his own, that were greatly admired in the times of their being written. He also paraphrased the Psalms; and has left behind him a Translation, with Notes, of one Sacred Drama written originally by Grotius, under the title of *Christus Patiens* on which, and *Adamus Exul*, and *Masenius*, is founded Lauder's impudent charge of plagiarism against our immortal Milton. Our author became one of the privy chamber to Charles I. and died in 1643.

SAN FERNANDO, near the entrance of the Golfo Dolce, in 15 degrees 48 minutes north latitude, has lately been fortified by the Spaniards, with an intent to curb the Musquito-men, logwood-cutters, and bay-men. It is a very good harbour, with safe anchorage from the north and east winds, in eight fathoms water.

SANGUIFICATION, in the animal œconomy, the conversion of the chyle into true blood. See BLOOD.

SANGUINARIA, BLOOD-WORT, in botany: A genus of the monogynia order, belonging to the polyandria class of plants; and in the natural method ranking under the 27th order, *Rhoeadeæ*. The corolla is octopetalous: the calyx diphyllous; the silique ovate and unilocular. There is only one species, viz. the canadensis, a native of the northern parts of America, where it grows plentifully in the woods; and in the spring, before the leaves of the trees come out, the surface of the ground is in many places covered with the flowers, which have some resemblance to our wood anemone; but they have short naked pedicles, each supporting one flower at top. Some of these flowers will have 10 or 12 petals, so that they appear to have a double range of leaves, which has occasioned their being termed *double flowers*; but this is only accidental, the same

Sanguisorba,
Sanhedrim.

roots in different years producing different flowers.—The plant can bear the open air in this country, but should be placed in a loose soil and sheltered situation, not too much exposed to the sun. It is propagated by the roots; which may be taken up and parted, in September, every other year. The Indians paint themselves yellow with the juice of these plants.

SANGUISORBA, GREATER WILD BURNET, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 54th order, *Miscellanea*. The calyx is diphyllous; the germen situated betwixt the calyx and corolla. The most remarkable species is the officinalis, with oval spikes. This grows naturally in moist meadows in many parts of Britain. The stalks rise from two to three feet high, branching towards the top; and are terminated by thick oval spikes of flowers of a greyish brown colour, which are divided into four segments almost to the bottom. These are succeeded by four oblong cornered seeds. The leaves of this sort are composed of five or six pair of lobes placed along a midrib, terminated by an odd one. These are heart-shaped, deeply sawed on their edges, and a little downy on their under-sides. The cultivation of this plant has been greatly recommended as food to cattle. See AGRICULTURE, n° 48, &c.

SANHEDRIM, or **SANHEDRIN**, from the Greek word *Συνεδριον*, which signifies a council or assembly of persons sitting together, was the name whereby the Jews called the great council of the nation, assembled in an apartment of the temple of Jerusalem to determine the most important affairs both of their church and state. This council consisted of seventy senators. The room they met in was a rotunda, half of which was built without the temple, and half within; that is, one semicircle was within the compass of the temple; the other semicircle, they tell us, was built without, for the senators to sit in; it being unlawful for any one to sit down in the temple. The Nasi, or prince of the sanhedrim, sat upon a throne at the end of the hall, having his deputy at his right hand, and his sub-deputy on his left. The other senators were ranged in order on each side.

The rabbins pretend, that the sanhedrim has always subsisted in their nation from the time of Moses down to the destruction of the temple by the Romans. They date the establishment of it from what happened in the wilderness, some time after the people departed from Sinai (Numb. xi. 16.), in the year of the world 2514. Moses, being discouraged by the continual murmurings of the Israelites, addressed himself to God, and desired to be relieved, at least, from some part of the burden of the government. Then the Lord said to him, "Gather unto me 70 men of the elders of Israel, whom thou knowest to be the elders of the people, and officers over them; and bring them unto the tabernacle of the congregation, that they may stand there with thee: And I will come down and talk with thee there; and I will take of the spirit which is upon thee, and will put it upon them; and they shall bear the burden of the people with thee, that thou bear it not thyself alone." The Lord, therefore, poured out his spirit upon these men, who began at that time to prophecy, and have not ceased from that time. The sanhedrim was composed of 70 counsellors, or rather 72, six out

of each tribe; and Moses, as president, made up the Sanhedrim number 73. To prove the uninterrupted succession of the judges of the sanhedrim, there is nothing unattempted by the partisans of this opinion. They find a proof where others cannot so much as perceive any appearance or shadow of it. Grotius may be consulted in many places of his Commentaries, and in his first book *De jure belli & pacis*, c. 3. art. 20. and *Selden de Synedriis veterum Hebræorum*. Also, Calmet's Dissertation concerning the polity of the ancient Hebrews, printed before his Comment upon the Book of Numbers.

As to the personal qualifications of the judges of this bench, their birth was to be untainted. They were often taken from the race of the priests or Levites, or out of the number of the inferior judges, or from the lesser sanhedrim, which consisted only of 23 judges.—They were to be skilful in the law, as well traditional as written. They were obliged to study magic, divination, fortune-telling, physic, astrology, arithmetic, and languages. The Jews say, they were to know to the number of 70 tongues; that is, they were to know all the tongues, for the Hebrews acknowledged but 70 in all, and perhaps this is too great a number. Eunuchs were excluded from the sanhedrim, because of their cruelty, usurers, decrepid persons, players at games of chance, such as had any bodily deformities, those that had brought up pigeons to decoy others to their pigeon-houses, and those that made a gain of their fruits in the sabbatical year. Some also exclude the high-priest and the king, because of their too great power; but others will have it, that the kings always presided in the sanhedrim, while there were any kings in Israel.—Lastly, it was required, that the members of the sanhedrim should be of a mature age, a handsome person, and of considerable fortune. We speak now according to the notions of the rabbins, without pretending to warrant their opinions.

The authority of the great sanhedrim was vastly extensive. This council decided such causes as were brought before it by way of appeal from the inferior courts. The king, the high-priest, the prophets, were under its jurisdiction. If the king offended against the law, for example, if he married above 18 wives, if he kept too many horses, if he hoarded up too much gold and silver, the sanhedrim had him stripped and whipped in their presence. But whipping, they say, among the Hebrews was not at all ignominious; and the king bore this correction by way of penance, and himself made choice of the person that was to exercise this discipline over him. Also, the general affairs of the nation were brought before the sanhedrim. The right of judging in capital cases belonged to this court, and this sentence could not be pronounced in any other place, but in the hall called *Lashbat-haggazith*, or the hall paved with stones, supposed by some to be the *Αὐτοσπαλάς*, or pavement, mentioned in John xix. 13. From whence it came to pass, that the Jews were forced to quit this hall when the power of life and death was taken out of their hands, 40 years before the destruction of their temple, and three years before the death of Jesus Christ. In the time of Moses this council was held at the door of the tabernacle of the testimony. As soon as the people were in possession of the land of promise, the sanhedrim followed the tabernacle. It was kept successively

hedrim. sively at Gilgal, at Shiloh, at Kirjath-jearim, at Nob, at Gibeon in the house of Obed-edom; and lastly, it was settled at Jerusalem, till the Babylonish captivity. During the captivity it was kept up at Babylon. After the return from Babylon, it continued at Jerusalem to the time of the Sicarii, or Assassins. Then finding that these profligate wretches, whose number increased every day, sometimes escaped punishment by the favour of the president or judges, it was removed to Hanoth, which were certain abodes situated, as the rabbins tell us, upon the mountain of the temple. From thence they came down into the city of Jerusalem, withdrawing themselves by degrees from the temple. Afterwards they removed to Jamnia, thence to Jericho, to Uzzah, to Sepharvaim, to Bethsanim, to Sephoris, last of all to Tiberias, where they continued to the time of their utter extinction. And this is the account the Jews themselves give us of the sanhedrim.

But the learned do not agree with them in all this. Father Petau fixes the beginning of the sanhedrim not till Gabinus was governor of Judea, who, according to Josephus, erected tribunals in the five principal cities of Judea; at Jerusalem, at Gadara, at Amathus, at Jericho, and at Sephora or Sephoris, a city of Galilee. Grotius places the origin of the sanhedrim under Moses, as the rabbins do; but he makes it determine at the beginning of Herod's reign. Mr Bafnage at first thought that the sanhedrim began under Gabinus; but afterwards he places it under Judas Maccabæus, or under his brother Jonathan. We see indeed, under Jonathan Maccabæus, (1 Macc. xii. 6.), in the year 3860, that the senate with the high-priest sent an embassy to the Romans. The rabbins say, that Alexander Jannæus, king of the Jews, of the race of the Asmonæans, appeared before the sanhedrim, and claimed a right of sitting there, whether the senators would or not. Josephus informs us, that when Herod was but yet governor of Galilee, he was summoned before the senate, where he appeared. It must be therefore acknowledged, that the sanhedrim was in being before the reign of Herod. It was in being afterwards, as we find from the Gospel and from the Acts. Jesus Christ in St Matthew (v. 22.) distinguishes two tribunals.—“Whosoever is angry with his brother without a cause shall be in danger of the judgment.” This, they say, is the tribunal of the 23 judges. “And whosoever shall say to his brother Raca, shall be in danger of the council;” that is, of the great sanhedrim, which had the right of life and death, at least generally, and before this right was taken away by the Romans. Some think that the jurisdiction of the council of 23 extended to life and death also; but it is certain that the sanhedrim was superior to this council. See also Mark xiii. 9. xiv. 55. xv. 1.; Luke xxii. 52, 66.; John xi. 47.; Acts iv. 15. v. 21. where mention is made of the synedrium, or sanhedrim.

From all this it may be concluded, that the origin of the sanhedrim is involved in uncertainty; for the council of the 70 elders established by Moses was not what the Hebrews understand by the name of sanhedrim. Besides, we cannot perceive that this establishment subsisted either under Joshua, the judges, or the kings. We find nothing of it after the captivity, till the time of Jonathan Maccabæus. The tribunals erected by Gabinus were very different from the sanhedrim, which was the

supreme court of judicature, and fixed at Jerusalem; whereas Gabinus established five at five different cities. Lastly, it is certain that this senate was in being in the time of Jesus Christ; but the Jews themselves inform us that they had no longer then the power of life and death (John xviii. 31.)

SANJACKS, a people inhabiting the Curdistan, or Persian mountains, subsisting chiefly by plunder, and the scanty pittance afforded by their own mountainous country. “They were much reduced (says Mr Ives) by the late bashaw Achmet of Bagdad, who pursued them in person to their subterranean retreats, and destroyed many by the sword, and carried off great numbers of prisoners, who were sold for slaves.” Notwithstanding this check, in the year 1758, they were again become so daring that they would attack caravans of 700 men, and sometimes carry all off. They are said to be worshippers of the evil principle.

SAN JUAN DE PUERTO RICO, usually called *Porto Rico*, one of the West India islands belonging to Spain, is situated in about 18. N. Lat. and between 65. 36. and 67. 45. W. Long. and is about 40 leagues long and 20 broad. The island is beautifully diversified with woods, valleys, and plains, and is extremely fertile. It is well watered with springs and rivers, abounds with meadows, is divided by a ridge of mountains running from east to west, and has a harbour so spacious that the largest ships may lie in it with safety. Before the arrival of the Spaniards it was inhabited by 4 or 500,000 people, who, in a few years, were extirpated by its merciless conquerors. Raynal says, that its whole inhabitants amounts at present only to 1500 Spaniards, Mestoes, and Mulattoes, and about 3000 negroes. Thus one of the finest islands in the West Indies has been depopulated by the cruelty, and left uncultivated by the indolence, of its possessors. But it is the appointment of Providence, who seldom permits flagrant crimes to pass unpunished, that poverty and wretchedness should be uniform consequences of oppression.

SANICULA, SANICLE, or *Self-heal*, in botany: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 45th order, *Umbellata*. The umbels are close together, almost in a round head; the fruit is scabrous; the flowers of the disk abortive. There are three species, viz. the canadensis, marilandica, and europæa, found in many parts both of Scotland and England. This plant was long celebrated for its healing virtues; but it is now totally disregarded.

SANIDIUM, in natural history, the name of a genus of fossils of the class of the selenitæ, but neither of the rhomboidal nor columnar kinds, nor any other way distinguishable by its external figure; being made up of several plain flat plates.

SANIES, in medicine, a serous putrid matter, issuing from wounds. It differs from pus, which is thicker and whiter.

SANNAZARIUS (James), in Latin *Adrius Cincius Sannazarius*, a celebrated Latin and Italian poet, born at Naples in 1458. He by his wit ingratiated himself into the favour of king Frederic; and, when that prince was dethroned, attended him into France, where he staid with him till his death, which happened in 1524. Sannazarius then returned into Italy, where he applied himself to polite literature, and particularly

Sanja
||
Sannaza-
rius.

Ives's Voy-
age to India,
&c.

Santa.

to Latin and Italian poetry. His gay and facetious humour made him sought for by all companies; but he was so afflicted at the news that Phillibert prince of Orange, general of the emperor's army, had demolished his country-house, that it threw him into an illness, of which he died in 1530. It is said, that being informed a few days before his death, that the prince of Orange was killed in battle, he called out, "I shall die contented, since Mars has punished this barbarous enemy of the Muses." He wrote a great number of Italian and Latin poems: among those in Latin, his *De Partu Virginis* and Eclogues are chiefly esteemed; and the most celebrated of his Italian pieces is his *Arcadia*.

SANTA CRUZ, a large island in the South Sea, and one of the most considerable of those of Solomon, being about 250 miles in circumference. W. Long. 130. 0. S. Lat. 10. 21.

Raynal's
History of
the East and
West Indies,
vol. 4th,
p. 298.

SANTA CRUZ, or ST-CROIX, a small and unhealthy island, situated in about 64 degrees west longitude and 18 north latitude. It is about eighteen leagues in length, and from three to four in breadth. In 1643 it was inhabited by Dutch and English, who soon became enemies to each other; and in 1650 were both driven out by 1200 Spaniards, who arrived there in five ships. The triumph of these lasted but a few months. The remains of that numerous body, which were left for the defence of the island, surrendered without resistance to 160 French, who had embarked in 1651, from St Christopher's, to make themselves masters of the island.

These new inhabitants lost no time in making themselves acquainted with a country so much disputed. On a soil, in other respects excellent, they found only one river of a moderate size, which, gliding gently almost on a level with the sea through a flat country, furnished only a brackish water. Two or three springs, which they found in the innermost parts of the island, made but feeble amends for this defect. The wells were for the most part dry. The construction of reservoirs required time. Nor was the climate more inviting to the new inhabitants. The island being flat, and covered with old trees, scarce afforded an opportunity for the winds to carry off the poisonous vapours with which its morasses clogged the atmosphere. There was but one remedy for this inconvenience; which was to burn the woods. The French set fire to them without delay; and, getting on board their ships, became spectators from the sea, for several months, of the conflagration they had raised in the island. As soon as the flames were extinguished, they went on shore again.

They found the soil fertile beyond belief. Tobacco, cotton, arnotto, indigo, and sugar, flourished equally in it. So rapid was the progress of this colony, that in 11 years from its commencement there were upon it 822 white persons, with a proportionable number of slaves. It was rapidly advancing to prosperity, when such obstacles were thrown in the way of its activity as made it decline again. This decay was as sudden as its rise. In 1696 there were no more than 147 men, with their wives and children, and 623 blacks remaining; and these were transported to St Domingo.

Some obscure individuals, some writers unacquainted with the views of government, with their secret nego-

tiations, with the character of their ministers, with the interests of the protectors and the protected, who flatter themselves that they can discern the reason of events amongst a multitude of important or frivolous causes, which may have equally occasioned them; who do not conceive, that among all these causes the most natural may possibly be the farthest from the truth; who after having read the news, or journal of the day, with profound attention, decide as peremptorily as if they had been placed all their lifetime at the helm of the state, and had assisted at the council of kings; who are never more deceived than in those circumstance in which they display some share of penetration; writers as absurd in the praises as in the blame which they bestow upon nations, in the favourable or unfavourable opinion they form of ministerial operations: these idle dreamers, in a word, who think they are persons of importance, because their attention is always engaged on matters of consequence, being convinced that courts are always governed in their decisions by the most comprehensive views of profound policy, have supposed that the court of Versailles had neglected Santa Cruz, merely because they wished to abandon the small islands in order to unite all their strength, industry, and population, in the large ones; but this is a mistaken notion. This determination arose from the farmers of the revenue, who found that the contraband trade of Santa Cruz with St Thomas was detrimental to their interests. The spirit of finance hath in all times been injurious to commerce; it hath destroyed the source from whence it sprang. Santa Cruz continued without inhabitants, and without cultivation, till 1733, when it was sold by France to Denmark for 30,750*l*. Soon after the Danes built there the fortress of Christianstadt. Then it was that this northern power seemed likely to take deep root in America. Unfortunately, she laid her plantations under the yoke of exclusive privileges. Industrious people of all sects, particularly Moravians, strove in vain to overcome this great difficulty. Many attempts were made to reconcile the interests of the colonists and their oppressors, but without success. The two parties kept up a continual struggle of animosity, not of industry. At length the government, with a moderation not to be expected from its constitution, purchased, in 1754, the privileges and effects of the company. The price was fixed at L. 412,500, part of which was paid in ready money, and the remainder in bills upon the treasury, bearing interest. From this time the navigation to the islands was opened to all the subjects of the Danish dominions. Of 345 plantations, which were seen at Santa Cruz, 150 were covered with sugar canes, and every habitation is limited to 3000 Danish feet in length, and 2000 in breadth. It is inhabited by 2136 white men, by 22,244 slaves, and by 155 freedmen.

SANTA CRUZ, in Teneriff. See TENERIFF.

SANTA CRUZ, a town of Africa, on the coast of Barbary, and in the province of Suez and kingdom of Morocco, with a harbour and a fort. The Moors took it from the Portuguese in 1536. It is seated at the extremity of Mount Atlas, on the Cape Aguer. W. Long. 10. 7. N. Lat. 30. 38.

SANTA CRUZ DE LA SIERRA, a town of South America, and capital of a province of that name in Peru, and in the audience of Los Charcas, with a bishop's see.

Santa.

Santa, antalum. *see.* It is seated at the foot of a mountain, in a country abounding in good fruits, on the river Guapy. W. Long. 59. 35. S. Lat. 20. 40.

SANTA Fe de Bogota, a town of South America, and capital of New Granada, with an archbishop's see, a supreme court of justice, and an university.

The city is situated at the foot of a steep and cold mountain, at the entrance of a vast and superb plain. In 1774 it contained 1770 houses, 3246 families, and 16,233 inhabitants. Population must necessarily increase there, since it is the seat of government, the place where the coin is stricken, the staple of trade; and lastly, since it is the residence of an archbishop, whose immediate jurisdiction extends over 31 Spanish villages, which are called towns; over 195 Indian colonies, anciently subdued; and over 28 missions, established in modern times. This archbishop hath likewise, as metropolitan, a sort of inspection over the dioceses of Quito, of Panama, of Caraccas, of St Martha, and of Carthagena. It is by this last place, though at the distance of 100 leagues, and by the river Magdalena, that Santa Fe keeps up its communication with Europe. There are silver mines in the mountains about the city. W. Long. 60. 5. N. Lat. 3. 58.

SANTALUM, in botany: A genus of the monogynia order, belonging to the octandria class of plants; and in the natural method ranking with those of which the order is doubtful. The calyx is superior; the corolla monopetalous; the stamina placed in the tube; the stigma is simple; the fruit a berry.

The fantalum, or sanders, grows to the size of a walnut-tree. Its leaves are entire, oval, and placed opposite to each other. Its flower is of one single piece, charged with eight stamina, and supported upon the pistil, which becomes an insipid berry, resembling in form that of the laurel. Its wood is white in the circumference, and yellow in the centre when the tree is old. This difference of colour constitutes two kinds of sanders, both employed for the same purposes, and having equally a bitter taste, and an aromatic smell. With the powder of this wood a paste is prepared, with which the Chinese, Indians, Persians, Arabians, and Turks, anoint their bodies. It is likewise burnt in their houses, and yields a fragrant and wholesome smell. The greatest quantity of this wood, to which a sharp and attenuating virtue is ascribed, remains in India. The red sanders, though in less estimation, and less generally used, is sent by preference into Europe. This is the produce of a different tree, which is common on the coast of Coromandel. Some travellers confound it with the wood of Caliatour, which is used in dyeing.

The fantalum album, or white sanders, is brought from the East Indies in billets about the thickness of a man's leg, of a pale whitish colour. It is that part of the yellow sanders wood which lies next the bark. Great part of it, as met with in the shops, has no smell or taste, nor any sensible quality that can recommend it to the notice of the physician.

The fantalum album, or yellow sanders, is the interior part of the wood of the same tree which furnishes the former, is of a pale yellowish colour, of a pleasant smell, and a bitterish aromatic taste, accompanied with an agreeable kind of pungency. This elegant wood might undoubtedly be applied to valuable medical pur-

poses, though at present very rarely used. Distilled with water, it yields a fragrant essential oil, which thickens in the cold into the consistence of a balsam. Digested in pure spirit, it imparts a rich yellow tincture; which being committed to distillation, the spirit arises without bringing over any thing considerable of the flavour of the sanders. The residuum contains the virtues of six times its weight of the wood. Hoffman looks upon this extract as a medicine of similar virtues to ambergris; and recommends it as an excellent restorative in great debilities.

SANTAREN, a handsome town of Portugal in Estremadura, seated on a mountain near the river Tago, in a country very fertile in wheat, wine, and oil. They get in their harvest here two months after they have sown their corn. It was taken from the Moors in 1447. W. Long. 7. 45. N. Lat. 39. 12.

SANTAUGUSTINE. See *AUGUSTINE*.

SANTEN, a town of Germany, in the circle of Westphalia, and in the duchy of Cleves. It has a handsome church belonging to the Roman Catholics, wherein is an image of the Virgin Mary, which they pretend performs a great many miracles. Here the fine walks begin that run as far as Wesel, from which it is five miles distant to the north-west. E. Long. 6. 33. N. Lat. 51. 38.

SANTERRE, a small territory of France, in Picardy; bounded on the north by Cambresis, on the east by Vermandois, on the west by Amienois, and on the south by the river Somme. It is very fertile, and the capital town is Peronne.

SANTEUIL, or rather *SANTEUL* (John Baptist de); in Latin *Santolius Victorinus*, an excellent Latin poet, was born at Paris in 1630. Having finished his studies in Louis the Great's college, he applied himself entirely to poetry, and celebrated in his verse the praises of several great men; by which he acquired universal applause. He enriched Paris with a great number of inscriptions, which are to be seen on the public fountains, and the monuments consecrated to posterity. At length, some new hymns being to be composed for the Breviary of Paris, Claude Santeuil his brother, and M. Bossuet, persuaded him to undertake that work; and he succeeded in it with the greatest applause. On which the order of Clugny desiring him to compose some for their Breviary, he complied with their request; and that order, out of gratitude, granted him letters of filiation, with an annual pension. Santeuil was caressed by all the learned men of his time; and had for his admirers the two princes of Condé, the father and son, from whom he frequently received favours. Louis XIV. also gave him a proof of his esteem, by bestowing a pension upon him. He attended the duke of Bourbon to Dijon, when that prince went thither in order to hold the states of Burgundy; and died there in 1697, as he was preparing to return to Paris. Besides his Latin hymns, he wrote a great number of Latin poems, which have all the fire and marks of genius discoverable in the works of great poets.

To Santeuil we are indebted for many fine church-hymns, as above-mentioned. Santeuil read the verses he made for the inhabitants of heaven with all the agitations of a demoniac. Despreaux said he was the dévil

Santaren
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Santeuil.

Santeuil
Santolina.

devil whom God compelled to praise saints. He was among the number of poets whose genius was as impetuous as his muse was decent.

La Bruyere has painted the character of this singular and truly original poet in the most lively colours. "Image a man of great facility of temper, complaint and docile, in an instant violent, choleric, passionate, and capricious. A man simple, credulous, playful, volatile, puerile; in a word, a child in gray hairs: but let him collect himself, or rather call forth his interior genius, I venture to say, without his knowledge or privacy, what sallies! what elevation! what images! what latinity! Do you speak of one and the same person, you will ask? Yes, of the same; of Theodas, and of him alone. He shrieks, he jumps, he rolls upon the ground, he roars, he storms; and in the midst of this tempest, a flame issues that shines, that rejoices. Without a figure, he rattles like a fool, and thinks like a wise man. He utters truths in a ridiculous way; and, in an idiotic manner, rational and sensible things. It is astonishing to find good sense disclose itself from the bosom of buffoonery, accompanied with grimaces and contortions. What shall I say more? He does and he says better than he knows. These are like two souls that are unacquainted with each other, which have each their turn and separate functions. A feature would be wanting in this extraordinary portrait, if I omitted saying, that he has at once an insatiable thirst for praise, ready to throw himself at the mercy of the critics, and at the bottom so docile as to profit by their censure. I begin to persuade myself that I have been drawing the portraits of two different persons: it would not be impossible to find a third in Theodas; for he is a good man, a pleasant man, an excellent man."

This poet ought not to be confounded with *Claude de Santeuil*, his brother, a learned ecclesiastic, who also wrote several hymns in the Paris Breviary under the name of *Santolius Maglioranus*, a name given him from his having lived a long time in the seminary of St Magliore at Paris, in quality of secular ecclesiastic. He was esteemed not only for his poetical abilities, but also for his profound erudition and his exemplary piety. He died at Paris in 1684, aged 57. He wrote several other pieces of poetry, besides his hymns, which are printed with his brother's works.

SANTILLANE, a sea-port town of Spain, in the province of Asturias, of which it is the capital. It is seated on the sea-coast, 55 miles east of Oviedo, and 200 north-west of Madrid. W. Long. 4. 33. N. Lat. 43. 30.

SANTOLINA, LAVENDER-COTTON, in botany: A genus of the order of polygamia æqualis, belonging to the syngenesia class of plants; and in the natural method ranking under the 49th order, *Compositæ*. The receptacle is paleaceous; there is no pappus; the calyx imbricated and hemispherical.

The most remarkable species are, 1. The *chamæcyparissus*, or common lavender-cotton, which has been long known in the English gardens; it was formerly titled *abrotanum femina*, or female southernwood, and by the corruption of words was called *brotany* by the market-people: it grows naturally in Spain, Italy, and the warm parts of Europe. This hath a ligneous stalk, dividing into many branches, garnished with slender ho-

ry leaves, that are four ways indented, and have a rank, strong, odour when handled. The branches are terminated by a single flower, composed of many hermaphrodite florets, which are fistular, cut into five parts at the top, of a sulphur colour, and are included in one common scaly empalement, having no borders or rays. These are succeeded by small, oblong, striated seeds, which are separated by scaly chaff, and ripen in the empalement; the plants love a dry soil and a sheltered situation. 2. The *villosa*, with woolly leaves, has a shrubby stalk, which branches out like the former, but the plants seldom grow so tall. The branches are garnished very closely below with leaves shaped like those of the other sort, but shorter, thicker, and whiter; the flowers are much larger, and the brims of the florets are more reflexed; they are of a deeper sulphur colour than the other. It grows naturally in Spain. 3. The *decumbens*, with linear leaves, is of lower stature than either of the former, seldom rising more than 15 or 16 inches high. The branches spread horizontally near the ground, and are garnished with shorter leaves than either of the former, which are hoary and finely indented; the stalks are terminated by single flowers, of a bright yellow colour, which are larger than those of the first sort. 4. The *virens*, with very long linear leaves, rises higher than either of the former. The branches are more diffused; they are slender, smooth, and garnished with very narrow long leaves, which are of a deep green colour, but two ways indented; the stalks are slender, naked towards the top, and terminated by single flowers of a gold colour. 5. The *rosmarinifolia*, with linear entire leaves, hath shrubby stalks, which rise about three feet high, sending out long slender branches, garnished with single linear leaves of a pale-green colour. The stalks are terminated by large, single, globular flowers, of a pale sulphur colour. 6. The *minor*, with linear obtuse leaves, is somewhat like the fifth; but the branches are shorter, thicker, and closer garnished with leaves, which come out in clusters. The flower-stalks are sparsely disposed, and have leaves to their top; the flowers are small, and of a yellow colour. 7. The *chamæmelifolia*, with obtuse woolly leaves, hath shrubby stalks, which rise three feet high, garnished with broader leaves than either of the former, whose indentures are looser, but double; they are hoary, and when bruised have an odour like chamomile. The leaves are placed pretty far asunder, and the stalks are garnished with them to the top. The stalks are divided likewise at the top into two or three foot-stalks, each sustaining one pretty large sulphur-coloured flower.

All these plants may be cultivated so as to become ornaments to a garden, particularly in small bosquets of ever-green shrubs, where, if they are artfully intermixed with other plants of the same growth, and placed in the front line, they will make an agreeable variety; especially if care be taken to trim them twice in a summer, to keep them within bounds, otherwise their branches are apt to straggle, and in wet weather to be borne down and displaced, which renders them unsightly; but when they are kept in order, their hoary and different-coloured leaves will have a pretty effect in such plantations.—They may be propagated by planting slips or cuttings during the spring, in a

border of light fresh earth, but must be watered and shaded in hot dry weather, until they have taken root; after which they will require no farther care but to keep them clean from weeds till autumn, when they should be transplanted where they are designed to remain: but if the ground is not ready by that time to receive them, it will be proper to let them remain in the border until spring; for if they are transplanted late in autumn, they are liable to be destroyed by cold in winter.

SANTORINI, an island of the Archipelago, to the north of Candia, and to the south-west of Naphio. It is eight miles in length, and near as much in breadth, and almost covered with pumice-stone, whence the soil in general must be dry and barren; it is, however, greatly improved by the labour and industry of the inhabitants, who have turned it into a garden. It affords a great deal of barley, plenty of cotton, and large quantities of wine. Fruit is scarce except figs; and they have neither oil nor wood. The inhabitants are all Greeks, and are about 10,000 in number. Pyrgos is the capital town, and there are several little towns and villages. They have but one spring in the island, for which reason they preserve the rain-water in cisterns. Though subject to the Turks, they choose their own magistrates. E. Long. 25. 5. N. Lat. 39. 10.

SANZIO (Raphael). See RAPHAEL.

SAO, a territory, called a kingdom, of Africa, on the gold-coast of Guinea, hardly two miles in length along the shore. It produces abundance of Indian corn, yams, potatoes, palm-wine, and oil. The inhabitants are very treacherous, and there is no dealing with them without a great deal of caution. It contains several villages, of which Sabo is the principal; and the Dutch have a fort here called *Nassau*.

SAONE, a considerable river of France, which has its source in mount Vosgue, near Darney; runs through the Franche Comte, Burgundy, Beaujolois; and falls into the Rhone at Lyons. It passes by Gray, Chalons, and Mafcon.

SAP, the juice found in vegetables.

We observed, when treating of PLANTS, that it has been long disputed whether the sap of plants be analogous to the blood of animals, and circulates in the same manner. We also mentioned the conclusions that Dr Hales drew from his numerous experiments, which were all in opposition to the doctrine that the sap circulates. As the subject is curious and interesting, and as additional light has been thrown upon it of late years, we wish to communicate it to our readers as fully as our limits will permit.

As the vegetable economy is still but imperfectly understood, and experiments made for tracing the motion of the sap may lead to important discoveries, we are happy to find, that of late years this subject has been again revived. Dr Walker, professor of Natural History in the university of Edinburgh, has published in the 1st volume of the Philosophical Transactions of Edinburgh an account of a course of very accurate and ingenious experiments, accompanied with observations and conclusions made with a caution which inspires confidence, and is indeed worthy of a disciple of Bacon. He is the first person, as far as we know, who thought of comparing the thermometer with the motion of the sap.

It is well known that in the spring vegetables contain a great quantity of sap; and there are some trees, as the birch and plane, which, if wounded, will discharge a great portion of it. Whence is this moisture derived? Whether is it imbibed from the atmosphere, or does it flow from the soil through the roots? These are the questions which require first to be answered; and Dr Walker's experiments enable us to answer them with confidence.

He selected a vigorous young birch, 30 feet high and 26 inches in circumference at the ground. He bored a hole just above the ground on the 1st of February, and cut one of its branches at the extremity. He repeated this every second day; but no moisture appeared at either of the places till the 5th of May, when a small quantity flowed on making an incision near the ground. He then cut 21 incisions in the trunk of the tree, on the north side, at the distance of a foot from one another, and reaching from the ground to the height of 20 feet. The incisions were solid triangles, each side being an inch long and an inch deep, and penetrating through the bark and wood. Dr Walker visited the tree almost every day for two months, and marked exactly from which of the incisions the sap flowed. He observed that it flowed from the lowest incision first, and gradually ascended to the highest. The following table will show the progress of the sap upwards, and its correspondence with the thermometer.

The first column is the day of the month on which the observation was made; the second expresses the number of incisions from which the sap flowed on the day of the month opposite; and the third column the degree of the thermometer at noon. Some days are omitted in March, as the incisions, though made on the 5th, did not bleed till the 11th. Some days are also passed over in April, because no observation was made on account of rain.

March.	N. of In.	Ther. Noon.	March.	N. of In.	Ther. Noon.
5	—	46	30	8	50
11	2	49	31	7	62
12	2	49			
13	1	44	April 2	7	46
14	4	48	4	10	53
15	5	52	7	11	49
16	5	47	8	11	48
17	4	44	9	12	50
18	5	47	10	13	53
19	6	48	11	13	45
20	5	44	12	13	44
21	7	48	13	13	43
22	7	45	14	14	55
23	8	46	15	14	49
24	9	47	16	16	56
25	9	42	18	16	50
26	7	39	19	17	54
27	8	45	20	19	56
28	8	49	21	20	54
29	8	46	22	21	52

Dr Walker found that the sap ascends through the wood, and still more copiously between the wood and the bark; but none could be perceived ascending through the pith or the bark. He found also, that when the thermometer at noon is about 49, or between 46 and 50, the sap rises about one foot in 24 hours; that when the thermometer is about 45 at noon, it ascends about

Sap,
Sapindus.

one foot in two days; and that it does not ascend at all unless the mid-day heat be above 40. He observed that it moves with more velocity through young than through old branches. In one young branch it moved through seven feet in one day, the thermometer being at 49, while it moved in the trunk of the tree only seven feet in seven days. Dr Walker has thus explained the reason why the buds on the extremities of branches unfold first; because they are placed on the youngest wood, to which the sap flows most abundantly.

The effects produced by the motion of the sap deserve to be attended to. In those parts to which it has mounted, the bark easily separates from the wood, and the ligneous circles may, without difficulty, be detached from one another. The buds begin to swell and their scales to separate, while those branches to which the sap has not ascended remain closely folded. When the sap has reached the extremities of the branches, and has thus pervaded the whole plant, it is soon covered with opening buds and ceases to bleed. The bleeding ceases first in the upper parts of the tree, and in the lower parts successively downwards, and the wood becomes dry. An inverted branch flows more copiously when cut than those which are erect. This is a proof that the ascent of the sap is not occasioned by capillary attraction, for water which has risen in a small glass tube by this attraction will not descend when the tube is inverted.

It is evident that there is an intimate connection between heat and the ascent of the sap. It did not begin to flow till the thermometer stood at a certain point: when it fell below 40, it was arrested in its progress. The south side of the tree, when the sun was bright, bled more profusely than the north side; and at sun-set the incisions at the top ceased to bleed, where it was exposed most to the cold air, while it still continued to flow from the incisions next to the ground; the ground retaining its heat longer than the air.

SAP, in sieges, is a trench, or an approach made under cover of 10 or 12 feet broad, when the besiegers come near the place, and the fire from the garrison grows so dangerous that they are not able to approach uncovered.—There are several sorts of saps; the single, which has only a single parapet; the double, having one on each side; and the flying, made with gabions, &c. In all saps traverses are left to cover the men.

SAPINDUS, the SOAP-BERRY TREE, in botany: A genus of the digynia order, belonging to the octandria class of plants; and in the natural method ranking under the 23d order, *Tribilata*. The calyx is tetraphyllous; the petals four; the capsules are fleshy, connate, and ventricose.

The species are four, the *saponaria*, *spinosa*, *trifoliatus*, and *chinensis*. The *saponaria*, with winged leaves, grows naturally in the islands of the West Indies, where it rises with a woody stalk from 20 to 30 feet high, sending out many branches garnished with winged leaves composed of several pair of spear-shaped lobes. The midrib has a membranaceous or leafy border, running on each side from one pair of lobes to the other, which is broadest in the middle between the lobes; the flowers are produced in loose spikes at the end of the branches; they are small and white, so make no great appearance. These are succeeded by oval berries as large as middling cherries, sometimes

single, at others, two, three, or four are joined together; these have a saponaceous skin or cover, which incloses a very smooth roundish nut of the same form, of a shining black when ripe. The skin or pulp which surrounds the nuts is used in America to wash linen; but it is very apt to burn and destroy it if often used, being of a very acrid nature.

These plants are propagated by seeds; they must be put into small pots, and plunged into a hot-bed of tanners bark. In five or six weeks the plants will appear, when the glasses of the hot-bed should be raised every day in warm weather, to admit fresh air to the plants. In three weeks or a month after the plants appear, they will be fit to be transplanted, when they must be shaken out of the pots, and carefully parted, so as not to injure their roots, and each planted into a separate small pot, and plunged into the hot-bed again, observing to shade them from the sun until they have taken new root; after which time they must have free air admitted to them every day when the weather is warm, and will require to be frequently watered.

SAPONARIA, SOPEWORT, in botany: A genus of the digynia order, belonging to the decandria class of plants; and in the natural method ranking under the 22d order, *Caryophylleæ*. The calyx is monophyllous and naked; there are five unguled petals; the capsule is oblong and unilocular.

There are eight species, the *officinalis*, *vaccaria*, *cretica*, *porrigens*, *illyrica*, *ocymoides*, *orientalis*, and *lutea*. The *officinalis*, which is a British plant, has a creeping root, so that in a short time it would fill a large space of ground. The stalks are about two feet high, and of a purplish colour. The footstalks of the flowers arise from the wings of the leaves opposite; they sustain four, five, or more purple flowers each; which have generally two small leaves placed under them. The stalk is also terminated by a loose bunch of flowers growing in form of an umbel; they have each a large swelling cylindrical empalement, and five broad obtuse petals, which spread open, of a purple colour. These are succeeded by oval capsules, with one cell filled with small seeds.—The decoction of this plant is used to cleanse and scour woollen cloths: the poor people in some countries use it instead of soap for washing; from which use it had its name.

SAPOR, TASTE. See TASTE, and ANATOMY, n^o 139.

SAPOTA, PLUM, in botany. See ACHRAS.

SAPPERS, are soldiers belonging to the royal artillery, whose business it is to work at the saps, for which they have an extraordinary pay. A brigade of sappers generally consists of eight men, divided equally into two parties; and whilst one of these parties is advancing the sap, the other is furnishing the gabions, fascines, and other necessary implements. They relieve each other alternately.

SAPPHIRA, was the wife of a rich merchant in Gueldres, and equally distinguished for her beauty and her virtue. Rhinsfauld, a German officer, and governor of the town of Gueldres, fell in love with her; and not being able to seduce her either by promises or presents, he imprisoned her husband, pretending that he kept up a traitorous correspondence with the enemies of the state. Sapphira yielded to the passion of the go-

vernor in order to relieve her husband from chains; but private orders had already been given to put him to death. His unhappy widow, overwhelmed with grief, complained to Charles duke of Burgundy. He ordered Rhinfauld to marry her, after having made over to her all his possessions. As soon as the deed was signed, and the marriage over, Charles commanded him to be put to death. Thus the children of a wife whom he had seduced, and of a husband whom he had murdered, became lawful heirs to all his wealth.

SAPPHIRE, a genus of precious stones, of a blue colour, and the hardest of all except the ruby and diamond. They are found in the same countries with the ruby; also in Bohemia, Alsace, Siberia, and Auvergne. M. Rome de l'Isle mentions one found at Auvergne, which appeared quite green or blue according to the position in which it was viewed. Cronstedt, however, informs us, that the blue fluor spars are frequently met with in collections under the name of *sapphires*; and it is certain from Pliny, B. 37. chap. 9. that the sapphire of the ancients was our lapis lazuli. They are seldom found of a deep blue colour throughout, or free from parallel veins; and when they are but slightly tinged, they are named *white sapphires*. The late unfortunate king of France had one with a stripe of fine yellow topaz in the middle. Some are found half green and half red, and are foliated like the ruby. The fine hard sapphires, called by the jewellers *oriental*, are of the same nature with the ruby and topaz, excepting the mere circumstance of colour. They are commonly in two oblong hexagon pyramids, joined at their base, and pointed at top; sometimes also in hexagonal columns.

The finest sapphires, like most of the gems, come from the East Indies. Russia does not produce the sapphire. In Scotland they are found of a hardness and lustre equal to the oriental, both light and deep coloured, at Benachie, and Invercauld, Aberdeenshire; Portsoy in Banffshire, and many other places. Mr Deuchar, seal-engraver in Edinburgh, has in his possession a beautiful sapphire, which was found in a double crystal. On one of these is cut a head, which was effected with the greatest difficulty, on account of its hardness; the other is cut into facets, and has a fine water, and great brilliancy.

The specific gravity of these precious stones, according to Bergman, is from 3,650 to 3,940. According to others the specific gravity of the oriental sapphires is 3,994; that of the Brazilian 3,1307; and of those from Puy in Auvergne, 4,0769. When powdered, they are fusible with borax, or microcosmic salt, into a transparent glass; and the same thing happens on treating them with magnesia alba. They are said to lose their colour by fire, and to become so hard and transparent as sometimes to pass for diamonds; but Mr Achard found this to be a mistake, and that the true sapphires are not in the least altered either in colour, hardness, or weight; by the most intense fire. Those of Puy in Auvergne, however, though by their colour and hardness they seem to approach the oriental sapphires, lose both their colour and transparency in the fire, becoming black, and even vitrifying, which plainly shows them to be of a different kind. Engestroom informs us, that the sapphires, in their rough or native state, generally crystallize in two oblong hexagonal pyramids pointed at top,

and joined at their bases, but are sometimes found of an hexagonal or columnar form.—A good sapphire of ten carats is valued at 50 guineas; if it weighs 20 carats, it is valued at 200 guineas; and, if under ten carats, its value may be found by multiplying the carat at 10s. 6d. by the square of its weight.—Sapphires are preferable to common rubies for jewelling watches, on account of the homogeneous hardness of their substance; some red stones resembling rubies being met with, which are not uniformly hard.

SAPPHO, a famous poetess of antiquity, who for her excellence in her art has been called the *Tenth Muse*, was born at Mitylene in the isle of Lesbos, about 610 years before Christ. She was contemporary with Stesichorus and Alcæus; which last was her countryman, and as some think her suitor. A verse of this poet, in which he insinuates to her his passion, is preserved in Aristotle, *Rhet. lib. i. cap. 9.* together with the fair damsel's answer.

- ALC.** I fain to Sappho would a wish impart,
But fear locks up the secret in my heart.
SAP. Thy downcast looks, respect, and timid air,
Too plain the nature of thy wish declare.
If lawless, wild, inordinate desire,
Did not with thoughts impure thy bosom fire,
Thy tongue and eyes, by innocence made bold,
Ere now the secret of thy soul had told.

M. la Fevre observes, that Sappho was not in her usual good-humour when she gave so cold an answer to a request, for which, at another time, perhaps she would not have waited.—It has been thought, too, that Anacreon was one of her lovers, and his editor Barnes has taken some pains to prove it: but chronology will not admit this; since, upon inquiry, it will be found that Sappho was probably dead before Anacreon was born. Of the numerous poems this lady wrote, there is nothing remaining but some small fragments, which the ancient scholiasts have cited; a hymn to Venus, preserved by Dionysius of Halicarnassus; and an ode to one of her mistresses †: which †See Poetry, 122. last piece confirms a tradition delivered down from antiquity, that her amorous passion extended even to persons of her own sex, and that she was willing to have her mistresses as well as her gallants.

Ovid introduces her making a sacrifice to Phaon, one of her male paramours; from which we learn, that Sappho's love for her own sex did not keep her from loving ours. She fell desperately in love with Phaon, and did all she could to win him; but in vain: upon which she threw herself headlong from a rock, and died. It is said that Sappho could not forbear following Phaon into Sicily, whither he retired that he might not see her; and that during her stay in that island she probably composed the hymn to Venus, still extant, in which she begs so ardently the assistance of that goddess. Her prayers, however, proved ineffectual: Phaon was cruel to the last degree. The unfortunate Sappho was forced to take the dreadful leap; she went to the promontory Leucas, and threw herself into the sea. The cruelty of Phaon will not surprise us so much, if we reflect, that she was a widow (for she had been married to a rich man in the isle of Andros, by whom she had a daughter, named *Cleis*); that she had never been hand-

Sappho.

Saraband
||
Saragossa.

some; that she had observed no measure in her passion to both sexes; and that Phaon had long known all her charms. She was, however, a very great wit, and for that alone deserves to be remembered. The Mitylenians held her merit in such high esteem, that they paid her sovereign honours after her death, and stamped their money with her image. The Romans afterwards erected a noble statue of porphyry to her; and in short, ancients as well as moderns have done honour to her memory. Vossius says, that none of the Greek poets excelled Sappho for sweetness of verse; and that she made Archilochus the model of her style, but at the same time took care to soften the severity of his expression. It must be granted, says Rapin, from what is left us of Sappho, that Longinus had great reason to extol the admirable genius of this woman; for there is in what remains of her something delicate, harmonious, and impassioned to the last degree.

SARABAND, a musical composition in the triple time, the motions of which are slow and serious.

Saraband is also a dance to the same measure, which usually terminates when the hand that beats the time falls; and is otherwise much the same as the minuet.

The saraband is said to be originally derived from the Saracens, and is usually danced to the sound of the guitar or castanettes.

SARACA, in botany; a genus of the hexandria order, belonging to the diadelphia class of plants.—There is no calyx: the corolla is funnel-shaped and quadrid; the filaments are on each side the throat of the corolla; the legumen is pedicellated.

SARACENS, the inhabitants of Arabia; so called from the word *sara*, which signifies a desert, as the greatest part of Arabia is; and this being the country of Mahomet, his disciples were called Saracens.

SARAGOSSA, a city of Spain, in the kingdom of Arragon, with an archbishop's see, an university, and a court of inquisition. It is said to have been built by the Phœnicians; and the Romans sent a colony here in the reign of the emperor Augustus, whence it had the name of *Cesar Augustus*, which by corruption has been changed into Saragossa. It is a large, handsome, and well-built town. The streets are long, broad, well-paved, and very clean, and the houses from three to six stories high. It is adorned with many magnificent buildings; and they reckon 17 large churches, and 14 handsome monasteries, not to mention others less considerable. The river Ebro runs cross the place, dividing it into two; and on its banks is a handsome quay, which serves for a public walk. The Holy-street is the largest, and so broad that it may be taken for a square; and here they have their bull-fights: in this street there are several noblemens families, particularly that of the viceroy. The convents are handsome and richly adorned, as well as the churches. The cathedral church is a spacious building, after the Gothic taste; but the finest church is that of Nuestra Señora del Pilar, seated on the side of the Ebro, and is a place of the greatest devotion in Spain. They tell us the Virgin appeared to St James, who was preaching the gospel, and left him her image, with a handsome pillar of jasper: it is still in this church which they pretend is the first in the world built to her honour. This image stands on a marble pillar, with a little Jesus in her arms; but the place is so dark, that it cannot be seen without the assistance of

lamps, which are 50 in number, and all of silver. There are also chandeliers and balustrades of massy silver. The ornaments of this image are the richest that can be imagined, her crown being full of precious stones of an inestimable price; in short, there is scarce any thing to be seen but gold and jewels, and a vast number of people come in pilgrimage hither. The town-house is a sumptuous structure, adorned with fine columns: in the hall are the pictures of all the kings of Arragon; and in a corner of it St George on horseback, with a dragon of white marble under him. It is seated in a very large plain, where the Ebro receives two other rivers; and over it are two bridges, one of stone and the other of wood, which last has been thought the most beautiful in Europe. A victory was obtained here over the French and Spaniards in 1710, but it was abandoned by the allies soon after. It is 97 miles west by north of Tarragona, 137 west of Barcelona, and 150 north-east of Madrid. W. Long. o. 48. N. Lat. 41. 47.

SARANNE. See LILUM.

SARCASM, in rhetoric, a keen bitter expression which has the true point of satire, by which the orator scoffs and insults his enemy: such as that of the Jews to our Saviour; "He saved others, himself he cannot save."

SARCOCELE, in surgery, a spurious rupture or hernia, wherein the testicle is considerably tumefied or indurated, like a scirrhus, or much enlarged by a fleshy excrescence, which is frequently attended with acute pains, so as to degenerate at last into a cancerous disposition. See SURGERY.

SARCOCOLLA, a concrete juice brought from Persia and Arabia, in small whitish-yellow grains, with a few of a reddish and sometimes of a deep red colour mixed with them; the whitest tears are preferred, as being the freshest: its taste is bitter, accompanied with a dull kind of sweetness. This drug dissolves in watery liquors, and appears chiefly to be of the gummy kind, with a small admixture of resinous matter. It is principally celebrated for conglutinating wounds and ulcers (whence its name *σαρκωκόλη* *flesh-glue*); a quality which neither this nor any other drug has any just title to.

SARCOLOGY, is that part of anatomy which treats of the soft parts, *viz.* the muscles, intestines, arteries, veins, nerves, and fat.

SARCOMA, in surgery, denotes any fleshy excrescence.

SARCOPHAGUS, in antiquity, a sort of stone coffin or grave, wherein the ancients laid those they had not a mind to burn.

The word, as derived from the Greek, literally signifies *flesh-eater*; because at first they used a sort of stone for the making of tombs, which quickly consumed the bodies. See the following article.

SARCOPHAGUS, or *Lapis Aëlius*, in the natural history of the ancients, a stone much used among the Greeks in their sepultures, is recorded to have always perfectly consumed the flesh of human bodies buried in it in forty days. This property it was much famed for, and all the ancient naturalists mention it. There was another very singular quality also in it, but whether in all, or only in some peculiar pieces of it, is not known: that is, its turning into stone any thing that was put into vessels made of it. This is recorded only

only by Mutianus and Theophrastus, except that Pliny had copied it from these authors, and some of the later writers on these subjects from him. The account Mutianus gives of it is, that it converted into stone the shoes of persons buried in it, as also the utensils which it was in some places customary to bury with the dead, particularly those which the person while living most delighted in. The utensils this author mentions, are such as must have been made of very different materials; and hence it appears that this stone had a power of consuming not only flesh, but that its petrifying quality extended to substances of very different kinds. Whether ever it really possessed this last quality has been much doubted; and many, from the seeming improbability of it, have been afraid to record it. What has much encouraged the general disbelief of it is, Mutianus's account of its taking place on substances of very different kinds and textures; but this is no real objection, and the whole account has probably truth in it. Petrifications in those early days might not be distinguished from incrustations of spar and stony matter on the surfaces of bodies only, as we find they are not with the generality of the world even to this day; the incrustations of spar on mosses and other substances in some of our springs, being at this time called by many *petrified moss*. &c. and incrustations like these might easily be formed on substances enclosed in vessels made of this stone, by water passing through its pores, dislodging from the common mass of the stone, and carrying with it particles of such spar as it contained; and afterwards falling in repeated drops on whatever lay in its way, it might again deposit them on such substances in form of incrustations. By this means, things made of ever so different matter, which happened to be inclosed, and in the way of the passage of the water, would be equally incrustated with and in appearance turned into stone, without regard to the different configuration of their pores and parts.

The place from whence the ancients tell us they had this stone was *Astos*, a city of *Lycia*, in the neighbourhood of which it was dug; and *De Boot* informs us, that in that country, and in some parts of the East, there are also stones of this kind, which, if tied to the bodies of living persons, would in the same manner consume their flesh. *Hill's Notes on Theophrastus*, p. 14.

SARCOTICS, in surgery, medicines which are supposed to generate flesh in wounds.

SARDANAPALUS, the last king of *Assyria*, whose character is one of the most infamous in history. He is said to have sunk so far in depravity, that, as far as he could, he changed his very sex and nature. He clothed himself as a woman, and spun amidst companies of his concubines. He painted his face, and behaved in a more lewd manner than the most lascivious harlot. In short, he buried himself in the most unbounded sensuality, quite regardless of sex and the dictates of nature. Having grown odious to all his subjects, a rebellion was formed against him by *Arbaces* the *Mede* and *Belshis* the *Babylonian*. They were attended, however, with very bad success at first, being defeated with great slaughter in three pitched battles. With great difficulty *Belshis* prevailed upon his men to keep the field only five days longer; when they were joined by the *Bactrians*, who had come to the assistance of *Sardanapalus*, but

had been prevailed upon to renounce their allegiance to him. With this reinforcement they twice defeated the troops of *Sardanapalus*, who shut himself up in *Nineveh* the capital of his empire. The city held out for three years; at the end of which, *Sardanapalus* finding himself unable to hold out any longer, and dreading to fall into the hands of an enraged enemy, retired into his palace, in a court of which he caused a vast pile of wood to be raised; and heaping upon it all his gold and silver, and royal apparel, and at the same time inclosing his eunuchs and concubines in an apartment within the pile, he set fire to it, and so destroyed himself and all together.

SARDINIA, an island of the Mediterranean, bounded by the strait which divides it from *Corfica* on the north; by the *Tuscan sea*, which flows between this island and *Italy*, on the east; and by other parts of the Mediterranean sea on the south and west. It is about 140 miles in length and 70 in breadth, and contains 420,000 inhabitants. The revenue arises chiefly from a duty upon salt, and is barely sufficient to defray the expences of government; but it certainly might be considerably augmented, as the soil produces wine, corn, and oil, in abundance. Most of the salt that is exported is taken by the *Danes* and *Swedes*; the *English* formerly took great quantities for *Newfoundland*, but having found it more convenient to procure it from *Spain* and *Portugal*, they now take little or none. A profitable tunny fishery is carried on at the south-west part of the island, but it is monopolized by the *Duke de St Pierre*, and a few more people, who happen to be proprietors of the adjoining land. Wild boars abound in the hilly parts of the island, and here are some few deer, not so large as those in *Britain*, but in colour and make exactly the same. Bees and sheep are also common, as well as horses.

The feudal system still subsists in a limited degree, and titles go with their estates; so that the purchaser of the latter inherits the former. The regular troops seldom exceed 2000 men; but the militia amount to near 26,000, of whom 11,000 are cavalry. Their horses are small, but uncommonly active. In a charge, we should beat them: but, on a march, they would be superior to us. The country people are generally armed; but notwithstanding their having been so long under the Spanish and Italian government, assassinations are by no means frequent; and yet by the laws of the country, if a man slays another without premeditated malice, within four hours after quarrelling with him, he is not liable to be hanged. On the other hand, the church affords no protection to the guilty. The *Sardinians* are not at all bigoted; and, next to the *Spaniards*, the *English* are their favourites. The whole island is subject to the *Duke of Savoy*, who enjoys the title of king of *Sardinia*. See **CAGLIARI**.

There is in this island a pleasing variety of hills and valleys, and the soil is generally fruitful; but the inhabitants are a slothful generation, and cultivate but a little part of it. On the coast there is a fishery of anchovies and coral, of which they send large quantities to *Genoa* and *Leghorn*. This island is divided into two parts; the one, called *Capo-di-Cagliari*, lies to the south; and the other *Capo-di-Lugary*, which is seated to the north. The principal towns are *Cagliari* the capital, *Oristagno*, and *Sassari*.

Sardis
||
Sardonix.

SARDIS, or **SARDES**, now called *Sardo* or *Sart*, is an ancient town of Natolia in Asia, about 40 miles east of Smyrna. It was much celebrated in early antiquity, was enriched by the fertility of the soil, and had been the capital of the Lydian kings. It was seated on the side of mount Tmolus; and the citadel, placed on a lofty hill, was remarkable for its great strength. It was the seat of King Croesus, and was in his time taken by Cyrus; after which the Persian Satrapas or commandant resided at Sardis as the emperor did at Susa. The city was also taken, burnt, and then evacuated by the Milesians in the time of Darius, and the city and fortress surrendered on the approach of Alexander after the battle of Granicus. Under the Romans Sardis was a very considerable place till the time of Tiberius Cæsar, when it suffered prodigiously by an earthquake. The munificence of the emperor, however, was nobly exerted to repair the various damages it then sustained. Julian attempted to restore the heathen worship in the place. He erected temporary altars where none had been left, and repaired the temples if any vestiges remained. In the year 400 it was plundered by the Goths, and it suffered considerably in the subsequent troubles of Asia. On the incursion of the Tartars in 1304, the Turks were permitted to occupy a portion of the citadel, separated by a strong wall with a gate, and were afterwards murdered in their sleep. The site of this once noble city is now green and flowery, the whole being reduced to a poor village, containing nothing but wretched huts. There are, however, some curious remains of antiquity about it, and some ruins which display its ancient grandeur. See *Chandler's Travels in Asia Minor*, p. 251, &c.

There is in the place a large caravansary, where travellers may commodiously lodge. The inhabitants are generally shepherds, who lead their sheep into the fine pastures of the neighbouring plain. The Turks have a mosque here, which was a Christian church, at the gate of which there are several columns of polished marble. There are a few Christians, who are employed in gardening. E. Long. 28. 5. N. Lat. 37. 51.

SARDONIUS RIVUS, *Sardonian Laughter*. A convulsive involuntary laughter; thus named from the herba sardonica, which is a species of ranunculus, and is said to produce such convulsive motions in the cheeks as resemble those motions which are observed in the face during a fit of laughter. This complaint is sometimes speedily fatal. If the ranunculus happens to be the cause, the cure must be attempted by means of a vomit, and frequent draughts of hydromel with milk.

SARDONYX, a precious stone consisting of a mixture of the chalcedony and carnelian, sometimes in strata, but at other times blended together. It is found, 1. Striped with white and red strata, which may be cut in *cameo* as well as the onyx. 2. White with red dentritical figures, greatly resembling the mocha-stone; but with this difference, that the figures in the sardonix are of a red colour, in the other black. There is no real difference, excepting in the circumstance of hardness, between the onyx, carnelian, chalcedony, sardonix, and agate, notwithstanding the different names bestowed upon them. Mongez informs us, that the yellow, or orange-coloured agates, with a wavy or undulating surface, are now commonly called sardonix. See **CARNELIAN** and **ONYX**.

SARGUS, in ichthyology. See **SPARUS**.

SARIMPATAM, a country of Indostan, lying at the back of the dominions of the Samorin of Malabar, and which, as far as we know, was never subdued by any foreign power. Mr Grose relates, that "it has been constantly a maxim with the inhabitants of this country never to make any but a defensive war; and even then, not to kill any of their adversaries in battle, but to cut off their noses. To this service the military were peculiarly trained up, and the dread of the deformity proved sufficiently strong to keep their neighbours, not much more martial than themselves, from effectually attacking them."

SARMENTOSÆ (from *sarmentum*, a long shoot like that of a vine); the name of the 11th class in Linnæus's Fragments of a Natural Method, consisting of plants which have climbing stems and branches, that, like the vine, attach themselves to the bodies in their neighbourhood for the purpose of support. See **BOTANY**, p. 459.

SAROTHTA, in botany: A genus of the trigynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 20th order, *Rotacea*. The corolla is pentapetalous; the capsule unilocular, trivalved, and coloured.

SARPLAR of *Wool*, a quantity of wool, otherwise called a *pocket* or *half-sack*; a sack containing 80 tod; a tod two stone; and a stone 14 pounds.—In Scotland it is called *sarpliath*, and contains 80 stone.

SARRACONIA, in botany: A genus of the monogynia order, belonging to the polyandria class of plants; and in the natural method ranking under the 54th order, *Miscellanea*. The corolla is pentapetalous; the calyx is double, and triphyllous below; pentaphyllous above; the capsule quinquelocular; the style has a stigma of the form of a shield.

SARSAPARILLA, in botany. See **SMILAX**.

SARTORIUS, in **ANATOMY**. See there, *Table of the Muscles*.

OLD SARUM, in Wilts, about one mile north of New Sarum or Salisbury, has the ruins of a fort which belonged to the ancient Britons; and is said also to have been one of the Roman stations. It has a double intrenchment, with a deep ditch. It is of an orbicular form, and has a very august look, being erected on one of the most elegant plans for a fortress that can be imagined. In the north-west angle stood the palace of the bishop, whose see was removed hither from Wilton and Sherborn; but the bishop quarrelling with King Stephen, he seized the castle and put a garrison into it, which was the principal cause of its destruction, as the see was soon after removed from hence to Salisbury in 1219. The area of this ancient city is situated on an artificial hill, whose walls were three yards thick, the ruins of which in many places in the circumference are still to be seen, and the tracks of the streets and cathedral church may be traced out by the different colour of the corn growing where once the city stood. Here synods and parliaments have formerly been held, and hither were the states of the kingdom summoned to swear fidelity to William the Conqueror. Here also was a palace of the British and Saxon kings, and of the Roman emperors; which was deserted in the reign of Henry III. for want of water, so that one farm-house is all that is left of this ancient city; yet it is called the *Borough*.

Sarum || **Satelliee.** *rough of Old Sarum*, and sends two members to parliament, who are chosen by the proprietors of certain adjacent lands.

In February 1795 a subterraneous passage was discovered at this place, of which we have the following account in the *Gentleman's Magazine* for March, in a letter dated Salisbury, Feb. 10. "Some persons of Salisbury on Saturday last went to the upper verge of the fortification (the citadel), and on the right-hand, after they had reached the summit, discovered a large hole. They got a candle and lantern, and went down a flight of steps for more than 30 yards. It was an arched way seven feet wide, neatly chiseled out of the solid rock or chalk. It is probable the crown of the arch gave way from the sudden thaw, and fell in. There is a great deal of rubbish at the entrance. It appears to be between six and seven feet high, and a circular arch overhead all the way. These particulars I learned from the person who himself explored it; but was afraid to go farther lest it might fall in again and bury him. He thinks it turns a little to the right towards Old Sarum house, and continues under the fosse till it reached the outer verge. The marks of a chisel, he says, are visible on the side. There are two large pillars of square-stone at the entrance, which appear to have had a door at foot. They are 18 inches by 27, of good free-stone, and the mason-work is extremely neat. The highest part of the archway is two feet below the surface of the ground.

"It is all now again filled up by order of farmer Whitchurch, who rents the ground of Lord Camelford, and thinks curiosity would bring so many people there as to tread down his grass whenever grass shall be there. I went into it 30 yards, which was as far as I could get for the rubbish. I measured it with a line, and found it extend full 120 feet inwards from the two pillars supposed to be the entrance; then onwards it appeared to be filled to the roof with rubbish. By measuring with the same line on the surface of the earth, I found it must go under the bottom of the outer bank of the outer trench; where I think the opening may be found by digging a very little way. Whether it was a Roman or a Norman work it is difficult to say; but it certainly was intended as a private way to go into or out of the castle; and probably a fort or strong castle was built over the outer entrance. I looked for inscriptions or coins, but have not heard of any being found."

SASAFRAS. See **LAURUS**.

SASHES, in military dress, are badges of distinction worn by the officers of most nations, either round their waist or over their shoulders. Those for the British army are made of crimson silk: for the Imperial army crimson and gold; for the Prussian army black silk and silver; the Hanoverians yellow silk; the Portuguese crimson silk with blue tassels.

SASINE, or **SEISIN**. See **LAW**, N° clxiv. 15, &c.

SASSA. See **MYRRH**, **OPCALPASUM**, and *Bruce's Travels*, Vol. V. p. 27, &c.

SATAN, a name very common in Scripture, means the devil or chief of the fallen angels. See **DEVIL**.

SATELLITE, in astronomy, the same with a secondary planet or moon.

SATIRE. See **SATYR**.

SATRAPA, or **SATRAPES**, in Persian antiquity, denotes an admiral; but more commonly the governor of a province.

SATTIN, a glossy kind of silk stuff, the warp of which is very fine, and stands so as to cover the coarser woof.

SATTINET, a slight thin kind of fatten, commonly striped, and ordinarily used by the ladies for summer night-gowns.

SATURANTS, in anatomy, the same with **ASORBENTS**.

SATURATION, in chemistry, is the impregnating an acid with an alkali, or *vice versa*, till either will receive no more, and the mixture will then become neutral.

SATURDAY, the seventh and last day of the week, so called from the idol Seater, worshipped on this day by the ancient Saxons, and thought to be the same as the Saturn of the Latins.

SATUREIA, **SAVORY**, in botany: A genus of the gymnospermia order, belonging to the didynamia class of plants; and in the natural method ranking under the 42d order, *Verticillata*. The segments of the corolla are nearly equal; the stamina standing asunder.

Species. 1. The *hortensis*, or summer savory, is an annual plant, which grows naturally in the south of France and Italy, but is cultivated in this country both for the kitchen and medicinal use. 2. The *montana*, or winter savory, is a perennial plant growing naturally in the south of France and Italy, but is cultivated in gardens both for culinary and medicinal purposes.

Culture. Both kinds are propagated by seeds. Those of the first kind should be sown in the beginning of April upon a bed of light earth, either where they are to remain, or for transplanting. If the plants are to stand unremoved, they should be sown thinly; but if they are to be transplanted, they may be sown closer. The second species may be sown upon a poor dry soil, where the plants will endure the severest winters, though they are often killed by the frost when planted in good ground. The plants will continue several years; but when they are old, the shoots will be shot and not so well furnished with leaves: it will therefore be proper to raise a supply of young plants every year.

Uses. Summer savory is a very warm pungent aromatic; and affords in distillation with water a subtle essential oil, of a penetrating smell, and very hot acrid taste. It yields little of its virtues by infusion to aqueous liquors; rectified spirit extracts the whole of its taste and smell, and elevates nothing in distillation.

SATURN, in astronomy, one of the planets of our solar system, revolving at the distance of more than 900 millions of miles from the sun. See **ASTRONOMY**, n° 31, 104—109, 191, and 269.

Dr Herschel, who has so much signalized himself by his discoveries in the celestial regions, has not omitted to make his observations on this planet, which he considers as one of the most engaging objects that astronomy offers to our view. His attention was first drawn to it in the year 1774, when he saw its ring resembling in appearance a narrow line, extending on both sides not much less than the diameter of the planet's disk. The observation was taken with a five and an half feet reflector.

Satire || **Saturn.**

Saturn.

reflector on the 17th of March; and on the 3d of April, the same year, when the planet appeared totally deprived of this noble appendage, by reason of the edge of the ring being then turned directly towards the earth, and invisible on account of its thinness or incapacity to reflect the light to such a distance. During the succeeding year, the ring appeared gradually opened, and at last assumed the shape of an ellipse. "It should be noticed (says he), that the black disk or belt upon the ring of Saturn is not in the middle of its breadth. Nor is the ring subdivided by many such lines, as has been represented in several treatises of astronomy; but that there is one single, dark, considerably broad line, belt, or zone, upon the ring, which I have always permanently found in the place where my figure represents it."

This zone, which is on the northern part of the ring, does not change its shape or colour like the belts of Jupiter, so that it is probably owing to some permanent projection. It cannot, however, be the shadow of a chain of mountains, as it is visible all round the ring; and there could be no shades visible at the ends of the axis, on account of the direction of the sun's illumination, which would be in the line of the chain; and the supposed argument will hold good against the supposition of caverns or concavities. It is likewise evident, that this dark zone is contained between two concentric circles, as all the phenomena answer to the projection of such a zone. The Doctor gives a figure, representing the planet as it appeared to him on the 10th of May 1780; whence we see that the zone is continued all the way round, with a gradual decrease towards the middle, answering to the appearance of a narrow circular plane projected into an ellipse. See *Philosoph. Transf.* for 1790, p. 3, &c.

It hath been conjectured, that this appearance is owing to a division of the ring, or rather that there are two rings about the planet; "but (says Dr Herschel) if one ring, of a breadth so considerable as that of Saturn, is justly to be esteemed the most wonderful arch that by the laws of gravity can be held together, how improbable must it appear to suppose it subdivided into narrow slips of rings, which by this separation will be deprived of a sufficient depth, and thus lose the only dimension which can keep them from falling upon the planet? It is true, indeed, that it may revolve with such velocity as greatly to assist its strength, and that in the subdivisions, of course, the different velocities for each division may be equally supposed to keep them up."

As to the substance of the ring, the Doctor supposes it to be no less solid than that of Saturn himself. Thus in the two figures given with the Doctor's Dissertation in the *Philosophical Transactions* above referred to, the shadow of the planet is delineated upon the ring as it actually appeared, according to the situation of the sun; and in like manner we will see the shadow of the ring upon the planet: and if we deduce the quantity of matter contained in the planet from the power by which the satellites are preserved in their orbits, the ring must also be taken into account. It is indeed evident that the ring exerts a very considerable force upon these bodies; since we find them affected with many irregularities in their motions, which we cannot properly ascribe to any other cause than the quantity of matter contained in the ring; or, at least, it ought to be allowed to have a proper share in producing them.

Saturn.

The ring seems to be endowed with a greater reflective power than the body of the planet; and the Doctor gives instances of his seeing part of the ring brighter than Saturn himself, as well as of his seeing it plainly through a telescope which could scarcely afford light enough for the planet. The most remarkable property of this wonderful ring, however, is its extreme thinness. "When we were nearly in the plane of the ring (says our author), I have repeatedly seen the first, second, and third satellites, nay even the sixth and seventh, pass before and behind the ring in such a manner that they served as excellent micrometers to estimate its thickness. It may be proper to mention a few instances, especially as they will serve to solve some phenomena that have been remarked by other astronomers, though they have not been accounted for in a manner consistently with other known facts. July 18th 1789, at 19^h 41' 9", sidereal time, the first satellite seemed to hang upon the following arm, declining a little towards the north, and I saw it gradually advance upon it towards the body of Saturn; but the ring was not so thick as the lucid point. July 23d, at 19^h 41' 8"; the second satellite was a very little preceding the ring; but the ring appeared to be less than half the thickness of the satellite. July 27th, at 20^h 15' 12", the second satellite was about the middle, upon the following arm of the ring, and towards the south; and the sixth satellite on the farther end towards the north; but the arm was thinner than either of them, Aug. 20th, at 22^h 12' 55", the third satellite was upon the ring, near the end of the preceding arm, when the latter seemed not to be the fourth, or at most the third part of the diameter of the satellite; which, in the situation it was, I took to be less than one single second in diameter. At the same time, I also saw the seventh satellite, following the third, at a little distance, in the shape of a bead upon a thread, projecting on both sides of the same arm. Hence also we are sure that the arm appeared thinner than the seventh satellite, which is considerably smaller than the sixth, which again is less than the first. August 31st, at 20^h 48' 26", the preceding arm was loaded about the middle with the third satellite. October 15th, at 0^h 43' 44", I saw the sixth satellite, without obstruction, about the middle of the preceding arm, though the ring was but barely visible with my 40 feet reflector, even while the planet was in the meridian. However, we were then a little inclined to the plane of the ring, and the third satellite, when it came near its conjunction with the first, was so situated, that it must have partly covered it a few minutes after I lost it behind my house. In all these observations, the ring did not in the least interfere with my view of the satellites. October 16th, I followed the sixth and seventh satellites up to the very disk of the planet; and the ring, which was extremely faint, did not in the least obstruct my seeing them gradually approach the disk, where the seventh vanished at 21^h 46' 44", and the sixth at 22^h 36' 44". There is, however, some suspicion, that by a refraction through some very rare atmosphere on the two planes of the ring, the satellites might be lifted up and depressed so as to become visible on both sides of the ring, even though the latter should be equal in thickness to the diameter of the smallest satellite, which may amount to 1000 miles. As for the arguments of its incredible thinness, which

some

some astronomers have brought from the short time of its being invisible when the earth passes through its plane, we cannot set much value upon them; for they must have supposed the edge of the ring, as they have also represented it in their figures, to be square; but there is the greatest reason to suppose it either spherical or spheroidal; in which case evidently the ring cannot disappear for any long time. Nay, I may venture to say, that the ring cannot possibly disappear, on account of its thickness; since, either from the edge or the sides, even if it were square on the corners, it must always expose to our sight some part which is illuminated by the rays of the sun; and that this is plainly the case we may conclude from its being visible in my telescopes during the time when others of less light had lost it; and when evidently we were turned towards the unenlightened side, so that we must either see the rounding side of the unenlightened edge, or else the reflection of the light of Saturn upon the side of the darkened ring, as we see the reflected light of the earth on the darkened part of the new moon. I will not, however, take upon me to decide which of the two may be the case, especially as there are other very strong reasons which induce us to think that the edge of the ring is of such a nature as not to reflect much light."

Several astronomers have supposed that the ring of Saturn is full of mountains and inequalities, like the moon; and of this opinion Dr Herschel himself was for a considerable time; till happening to observe one of these lucid points with attention for a considerable time, he saw it leave the ring altogether, and show itself as a satellite never before observed. With regard to the ring itself, he concludes his observations in these words: "Upon the whole, therefore, I cannot say that I had any one instance that could induce me to believe that the ring was not of one uniform thickness; that is, equally thick at equal distances from the centre, and of an equal diameter throughout the whole of its construction. The idea of protuberant points upon the ring of Saturn, indeed, is of itself sufficient to render their existence inadmissible, when we consider the enormous size which such points ought to be of to render them visible at the distance we are from that planet."

With regard to the satellites, the Doctor informs us, that he was long convinced of the existence of a sixth; and had he been more at leisure at the time of his discovering those of the Georgium Sidus, he would probably have completed the discovery of the satellites of Saturn also. The sixth was first observed distinctly on the 28th of August 1789, and the seventh on the 17th of September the same year. These satellites, however, do not occupy the place which we should have previously supposed them, being, in fact, the innermost of the whole. The seventh is next the body of the planet itself, and is very small. It revolves at the distance of 27".366 from the centre of Saturn, and seems to move exactly in the plane of the ring; but the Doctor observes, that it is exceedingly difficult to make a sufficient number of observations on it to determine the revolution exactly. He computes its periodical time at 22^h 40' 46". The sixth satellite is next to the seventh, and revolves at the distance of 35".058 from the centre of its primary in 10^h 53' 9". Its light is considerably strong, but not equal to that of the first satellite of former astronomers, which lies immediately beyond it.

The planet Saturn is now observed to have belts or fasciæ upon its disk as distinctly as Jupiter. Dr Herschel, on the 9th of April 1775, observed a northern belt on his body, inclined a little to the line of the ring. On the 1st of May 1776, there was another belt observed, inclined about 15° to the same line, but more to the south; and on the following side came up to the place where the ring crosses the body of the planet. — On the 8th of April two belts were observed, and these continued with variations, and sometimes the appearance of a third belt, till the 8th of September, when the account of the observations was discontinued. The Doctor remarks, that he generally observed these belts in equatorial situations, though sometimes it was otherwise. Two conclusions, he says, may be drawn from the observations he made this year. "The first, which relates to the changes in the appearance of the belts, is, that Saturn has probably a very considerable atmosphere, in which these changes take place, just as the alterations in the belts of Jupiter have been shewn with great probability to be in his atmosphere. This has also been confirmed by other observations. Thus, in occultations of Saturn's satellites, I have found them to hang to the disk for a long while before they would vanish. And though we ought to make some allowance for the encroachment of light, whereby a satellite is seen to reach up to the disk sooner than it actually does, yet without a considerable refraction it could hardly be kept so long in view after the apparent contact. The time of hanging upon the disk in the seventh satellite has actually amounted to 20 minutes. Now, as its quick motion during that interval carries it through an arch of near six degrees, we find that this would denote a refraction of about two seconds, provided the encroaching of light had no share in producing the effect. By an observation of the sixth satellite, the refraction of Saturn's atmosphere amounts to nearly the same quantity; for this satellite remained about 14 or 15 minutes longer in view than it should have done; and as it moves about 2½ degrees in that time, and its orbit is larger than that of the seventh, the difference is inconsiderable. The next inference we may draw from the appearance of the belts on Saturn is, that this planet turns upon an axis which is perpendicular to his ring. The arrangement of the belts, during the course of 14 years that I have observed them, has always followed the direction of the ring, which is what I have called *being equatorial*. Thus, as the ring opened, the belts began to advance towards the south, and to show an incurvature answering to the projection of an equatorial line, or to a parallel of the same. When the ring closed up, they returned towards the north, and are now, while the ring passes over the centre, exactly ranging with the shadow of it, on the body, generally one on each side, with a white belt close to it. When I say that the belts have always been equatorial, I pass over trifling exceptions, which certainly were owing to local causes. The step from equatorial belts to a rotation on an axis is so easy, and, in the case of Jupiter, so well ascertained, that I shall not hesitate to take the same consequence for granted here. But if there could remain a doubt, the observations of June 19th, 20th, and 21st, 1780, where the same spot upon one of the belts was seen in three different situations, would remove it completely."

Another evidence that Saturn, as well as the other planets, revolves upon its axis, is drawn from its flattened shape, like that of Mars, Jupiter, and Saturn. On the 31st of May 1781, the disk seemed to deviate as much from a true circle as that of Jupiter, though by the interference of the ring this could not be so well determined as after an interval of eight years. On the 18th of August 1787, the difference between the equatorial and polar diameters was measured, the mean of three observations of the former being $22''.81$, of the latter $20''.61$. From these observations, it appears that the polar diameter of Saturn is to his equatorial diameter nearly as 10 to 11; and that his axis is perpendicular to the plane of the ring.

In a subsequent paper, the Doctor gives up his reasoning against fixed lucid points in the ring, in consequence of having frequently observed them in such situations as could not by any means be accounted for by the satellites. He even attempts to invalidate his own arguments above-mentioned concerning the vast magnitude of the mountains necessary to make them visible at this distance. "As observations (says he) carefully made should always take the lead of theories, I shall not be concerned if such lucid spots as I am now going to admit, should seem to contradict what has been said in my last paper concerning the idea of inequalities or protuberant points. We may, however, remark, that a lucid and apparently protuberant point may exist without any great inequality in the ring. A vivid light, for instance, will seem to project greatly beyond the limits of the body on which it is placed. If, therefore, the luminous places on the ring should be such as proceed from very bright reflecting regions, or, which is more probable, owe their existence to the more fluctuating causes of inherent fires acting with great violence, we need not imagine the ring of Saturn to be very uneven or distorted, in order to present us with such appearances. In this sense of the word, then, we may still oppose the idea of protuberant points, such as would denote immense mountains of elevated surface.

"On comparing together several observations, a few trials shew that the brightest and best observed spot agrees to a revolution of $10^h 32' 15''.4$; and calculating its distance from the centre of Saturn, on a supposition of its being a satellite, we find it $17''.227$, which brings it upon the ring. It is therefore certain, that unless we should imagine the ring to be sufficiently fluid to allow a satellite to revolve in it, or suppose a notch, groove, or division in the ring, to suffer the satellite to pass along, we ought to admit a revolution of the ring itself. The density of the ring, indeed, may be supposed to be very inconsiderable by those who imagine its light to be rather the effect of some shining fluid, like an aurora borealis, than a reflection from some permanent substance; but its disappearance, in general, and in my telescopes its faintness, when turned edgewise, are in no manner favourable to this idea.—When we add also, that this ring casts a deep shadow upon the planet, is very sharply defined both in its outer and inner edge, and in brightness exceeds the planet itself, it seems to be almost proved that its consistence cannot be less than the body of Saturn, and that consequently no degree of fluidity can be admitted sufficient to permit a revolving body to keep in motion for any length of time. A groove might afford a pas-

sage, especially as on a former occasion we have already considered the idea of a divided ring. A circumstance also which seems rather to favour this idea, is, that in some observations a bright spot has been seen to project equally on both sides, as the satellites have been observed to do when they passed the ring. But, on the other hand, we ought to consider, that the spot has often been observed very near the end of the arms of Saturn's ring, and that the calculated distance is consequently a little too small for such appearances, and ought to be 19 or 20 seconds at least. We should also attend to the size of the spot, which seems to be variable: for it is hardly to be imagined that a satellite, brighter than the sixth, and which could be seen with the moon nearly at full, should so often escape our notice in its frequent revolutions, unless it varied much in its apparent brightness. To this we must add another argument drawn from the number of lucid spots, which will not agree with the motion of one satellite only; whereas, by admitting a revolution of the ring itself in $10^h 32' 15''.4$, and supposing all the spots to adhere to the ring, and to share in the same periodical return, provided they last long enough to be seen many times, we shall be able to give an easy solution of all the remaining phenomena. See Phil. Trans. 1790, p. 427.

SATURN, in chemistry, an appellation given to lead.

SATURN, in heraldry, denotes the black colour in blazoning the arms of sovereign princes.

SATURN, one of the principal of the Pagan deities, was the son of Cœlus and Terra, and the father of Jupiter. He deposed and castrated his father; and obliged his brother Titan to resign his crown to him, on condition of his bringing up none of his male issue, that the succession might at length devolve on him. For this purpose he devoured all the sons he had by his wife Rhea or Cybele: but she bringing forth at one time Jupiter and Juno, she presented the latter to her husband, and sent the boy to be nursed on mount Ida; when Saturn being informed of her having a son, demanded the child; but in his stead his wife gave him a stone swaddled up like an infant, which he instantly swallowed. Titan finding that Saturn had violated the contract he had made with him, put himself at the head of his children, and made war on his brother, and having made him and Cybele prisoners, confined them in Tartarus: but Jupiter being in the mean time grown up, raised an army in Crete, went to his father's assistance, defeated Titan, and restored Saturn to the throne. Some time after, Saturn being told that Jupiter intended to dethrone him, endeavoured to prevent it; but the latter being informed of his intention, deposed his father, and threw him into Tartarus. But Saturn escaping from thence fled into Italy, where he was kindly received by Janus king of the country, who associated him to the government: whence Italy obtained the name of *Saturnia Tellus*; as also that of *Latium*, from *latio*, "to lie hid." There Saturn, by the wisdom and mildness of his government, is said to have produced the golden age.

Saturn is represented as an old man with four wings, armed with a scythe; sometimes he is delineated under the figure of a serpent with its tail in its mouth. This is emblematic of the seasons, which roll perpetually in the same circle. Sometimes also Saturn is painted with

nalialia with a sand glass in his hand. The Greeks say, that the story of his mutilating his father and destroying his children is an allegory, which signifies, that Time devours the past and present, and will also devour the future. The Romans, in honour of him, built a temple and celebrated a festival, which they called *Saturnalia*. During this festival no business or profession was allowed to be carried on except cookery; all distinctions of rank ceased; slaves could say what they pleased to their masters with impunity; they could even rally them with their faults before their faces.

SATURNALIA, in Roman antiquity, a festival observed about the middle of December, in honour of the god Saturn, whom Lucan introduces giving an account of the ceremonies observed on this occasion, thus. "During my whole reign, which lasts but for one week, no public business is done; there is nothing but drinking, singing, playing, creating imaginary kings, placing servants with their masters at table, &c. There shall be no disputes, reproaches, &c. but the rich and poor, masters and slaves, shall be equal," &c.

On this festival the Romans sacrificed bare-headed, contrary to their custom at other sacrifices.

SATURNINE, an appellation given to persons of a melancholy disposition, as being supposed under the influence of the planet Saturn.

SATURNITE, a name given by Mr Kirwan to a new metallic substance, supposed to be discovered by M. Monnet. It was met with in some lead foundries at a place named *Poulla oven* in Brittany; being separated from the lead ore during its torrefaction. It resembles lead in colour, weight, solubility in acids and other properties, but differs from it in being more fusible, brittle, easily scorified and volatilized, and likewise not being miscible with lead in fusion. Messieurs Hassenfratz and Girond contended, that this saturnite was nothing but a compound of different substances, and accordingly gave an analysis of it as consisting of lead, copper, iron, silver, and sulphur; the proportions of which must naturally vary according to the quality of the ore put into the furnace. M. Monnet, however, insisted that the substance analysed by them was not that which he had discovered; but when he again visited the mines above-mentioned, he could meet with none of the substance there which he found before.

SATYAVRATA, or **MENU**, in Indian mythology, is believed by the Hindoos to have reigned over the whole world in the earliest age of their chronology, and to have resided in the country of Dravira on the coast of the eastern Indian peninsula. His patronymic name was *Vaivasvata*, or *child of the sun*. In the *Bhagavat* we are informed, that the Lord of the Universe, intending to preserve him from the sea of destruction, caused by the depravity of the age, thus told him how he was to act. "In seven days from the present time, O thou tamer of enemies, the three worlds will be plunged in an ocean of death; but, in the midst of the destroying waves, a large vessel, sent by me for thy use, shall stand before thee. Then shalt thou take all medicinal herbs, all the variety of seeds; and, accompanied by seven saints, encircled by pairs of all brute animals, thou shalt enter the spacious ark and continue in it, secure from the flood on one immense ocean without light, except the radiance of thy holy companions. When the ship shall be agitated by an impetuous wind, thou

shalt fasten it with a large sea-serpent on my horn; for I will be near thee: drawing the vessel, with thee and thy attendants, I will remain on the ocean, O chief of men, until a night of Brahmá shall be completely ended. Thou shalt then know my true greatness, rightly named the supreme Godhead; by my favour, all thy questions shall be answered, and thy mind abundantly instructed." All this is said to have been accomplished; and the story is evidently that of Noah disguised by Asiatic fiction and allegory. It proves, as Sir William Jones has rightly observed, an ancient Indian tradition of the universal deluge described by Moses; and enables us to trace the connection between the eastern and western traditions relating to that event. The same learned author has shown it to be in the highest degree probable, that the *Satyavrata* of India is the *Cronus* of Greece and the *Saturn* of Italy. See **SATURN**; and *Asiatic Researches*, Vol. I. p. 230, &c.

SATYR, or **SATIRE**, in matters of literature, a discourse or poem, exposing the vices and follies of mankind. See **POETRY**, Part II. Sect. x.

The chief satirists among the ancients are, Horace, Juvenal, and Persius: those among the moderns, are, Regnier and Boileau, in French; Butler, Dryden, Rochester, Buckingham, Swift, Pope, Young, &c. among the English; and Cervantes among the Spaniards.

SATYRIASIS. See **MEDICINE**, n° 372.

SATYRIUM, in botany: A genus of the diandria order, belonging to the gynandria class of plants; and in the natural method ranking under the 42d order, *Verticillatae*. The nectarium is scrotiform, or inflated double behind the flower.

SATYRS (in ancient mythology), a species of demi-gods who dwelt in the woods. They are represented as monsters, half-men, and half-goats; having horns on their heads, a hairy body, with the feet and tail of a goat. They are generally in the train that follows Bacchus. As the poets supposed that they were remarkable for piercing eyes and keen raillery, they have placed them in the same pictures with the Graces, Loves, and even with Venus herself.

SAVAGE (Richard), one of the most remarkable characters that is to be met with perhaps in all the records of biography, was the son of Anne countess of Macclesfield by the earl of Rivers, according to her own confession; and was born in 1698. This confession of adultery was made in order to procure a separation from her husband the earl of Macclesfield: yet, having obtained this desired end, no sooner was her spurious offspring brought into the world, than, without the dread of shame or poverty to excuse her, she discovered the resolution of disowning him; and, as long as he lived, treated him with the most unnatural cruelty. She delivered him over to a poor woman to educate as her own; prevented the earl of Rivers from leaving him a legacy of L. 6000, by declaring him dead; and in effect deprived him of another legacy which his godmother Mrs Lloyd had left him, by concealing from him his birth, and thereby rendering it impossible for him to prosecute his claim. She endeavoured to send him secretly to the plantations; but this plan being either laid aside or frustrated, she placed him apprentice with a shoemaker. In this situation, however, he did not long continue: for his nurse dying, he went to take care of the effects of his supposed mother; and found in

Satyr
||
Savage.

Savage. her boxes some letters which discovered to young Savage his birth, and the cause of its concealment.

From the moment of this discovery it was natural for him to become dissatisfied with his situation as a shoemaker. He now conceived that he had a right to share in the affluence of his real mother; and therefore he directly, and perhaps indiscreetly, applied to her, and made use of every art to awaken her tenderness and attract her regard. But in vain did he solicit this unnatural parent; she avoided him with the utmost precaution, and took measures to prevent his ever entering her house on any pretence whatever.

Savage was at this time so touched with the discovery of his birth, that he frequently made it his practice to walk before his mother's door in hopes of seeing her by accident; and often did he warmly solicit her to admit him to see her; but all to no purpose: he could neither soften her heart nor open her hand.

Mean time, while he was assiduously endeavouring to rouse the affections of a mother in whom all natural affection was extinct, he was destitute of the means of support, and reduced to the miseries of want. We are not told by what means he got rid of his obligation to the shoemaker, or whether he ever was actually bound to him; but we now find him very differently employed in order to procure a subsistence. In short, the youth had parts, and a strong inclination towards literary pursuits, especially poetry. He wrote a poem; and afterwards two plays, *Woman's a Riddle* and *Love in a Veil*: but the author was allowed no part of the profits from the first; and from the second he received no other advantage than the acquaintance of Sir Richard Steel and Mr Wilks, by whom he was pitied, caressed, and relieved. However, the kindness of his friends not affording him a constant supply, he wrote the tragedy of *Sir Thomas Overbury*; which not only procured him the esteem of many persons of wit, but brought him in 200*l*. The celebrated Aaron Hill, Esq; was of great service to him in correcting and fitting this piece for the stage and the press; and extended his patronage still farther. But Savage was, like many other wits, a bad manager, and was ever in distress. As fast as his friends raised him out of one difficulty, he sunk into another; and, when he found himself greatly involved, he would ramble about like a vagabond, with scarce a shirt on his back. He was in one of these situations all the time wherein he wrote his tragedy above-mentioned; without a lodging, and often without a dinner: so that he used to scribble on scraps of paper picked up by accident, or begged in the shops, which he occasionally stepped into, as thoughts occurred to him, craving the favour of pen and ink, as it were just to take a memorandum.

Mr Hill also earnestly promoted a subscription to a volume of *Miscellanies*, by Savage; and likewise furnished part of the poems of which the volume was composed. To this miscellany Savage wrote a preface, in which he gives an account of his mother's cruelty, in a very uncommon strain of humour.

The profits of his Tragedy and his *Miscellanies* together, had now, for a time, somewhat raised poor Savage both in circumstances and credit; so that the world just began to behold him with a more favourable eye than formerly, when both his fame and life were endangered by a most unhappy event. A drunken frolic

in which he one night engaged, ended in a fray, and Savage unfortunately killed a man, for which he was condemned to be hanged; his friends earnestly solicited the mercy of the crown, while his mother as earnestly exerted herself to prevent his receiving it. The counsellors of Hertford at length laid his whole case before queen Caroline, and Savage obtained a pardon.

Savage had now lost that tenderness for his mother, which the whole series of her cruelty had not been able wholly to repress; and considering her as an implacable enemy, whom nothing but his blood could satisfy, threatened to harass her with lampoons, and to publish a copious narrative of her conduct, unless she consented to allow him a pension. This expedient proved successful; and the lord Tyrconnel, upon his promise of laying aside his design of exposing his mother's cruelty, took him into his family, treated him as an equal, and engaged to allow him a pension of 200*l*. a year. This was the golden part of Savage's life. He was courted by all who endeavoured to be thought men of genius, and caressed by all who valued themselves upon a refined taste. In this gay period of his life he published the *Temple of Health and Mirth*, on the recovery of lady Tyrconnel from a languishing illness; and *The Wanderer*, a moral poem, which he dedicated to lord Tyrconnel, in strains of the highest panegyric: but these praises he in a short time found himself inclined to retract, being discarded by the man on whom they were bestowed. Of this quarrel lord Tyrconnel and Mr Savage assigned very different reasons. Our author's known character pleads too strongly against him; for his conduct was ever such as made all his friends, sooner or later, grow weary of him, and even forced most of them to become his enemies.

Being thus once more turned adrift upon the world, Savage, whose passions were very strong, and whose gratitude was very small, became extremely diligent in exposing the faults of lord Tyrconnel. He, moreover, now thought himself at liberty to take revenge upon his mother.—Accordingly he wrote *The Bastard*, a poem, remarkable for the vivacity of its beginning (where he finely enumerates the imaginary advantages of base birth), and for the pathetic conclusion, wherein he recounts the real calamities which he suffered by the crime of his parents.—The reader will not be displeased with a transcript of some of the lines in the opening of the poem, as a specimen of this writer's spirit and manner of versification.

Blest be the bastard's birth! thro' wondrous ways,
He shines eccentric like a comet's blaze.
No sickly fruit of faint compliance he;
He! stamp'd in nature's mint with ecstacy!
He lives to build, not boast, a gen'rous race;
No tenth transmitter of a foolish face.
He, kindling from within, requires no flame,
He glories in a bastard's glowing name.
—Nature's unbounded son, he stands alone,
His heart unbias'd, and his mind his own.
—O mother! yet no mother!—'tis to you
My thanks for such distinguish'd claims are due.

This poem had an extraordinary sale; and its appearance happening at the time when his mother was at Bath, many persons there took frequent opportunities of repeating passages from the *Bastard* in her hearing.

vage. ing. This was perhaps the first time that ever she discovered a sense of shame, and on this occasion the power of wit was very conspicuous: the wretch who had, without scruple, proclaimed herself an adulteress, and who had first endeavoured to starve her son, then to transport him, and afterwards to hang him, was not able to bear the representation of her own conduct; but fled from reproach, though she felt no pain from guilt; and left Bath with the utmost haste, to shelter herself among the crowds of London (A).

Some time after this, Savage formed the resolution of applying to the queen; who having once given him life, he hoped she might farther extend her goodness to him by enabling him to support it.—With this view, he published a poem on her birth-day, which he entitled *The Volunteer-Laureat*; for which she was pleased to send him 50 l. with an intimation that he might annually expect the same bounty. But this annual allowance was nothing to a man of his strange and singular extravagance. His usual custom was, as soon as he had received his pension, to disappear with it, and secrete himself from his most intimate friends, till every shilling of the 50 l. was spent; which done, he again appeared, penniless as before: But he would never inform any person where he had been, nor in what manner his money had been dissipated.—From the reports, however, of some who found means to penetrate his haunts, it would seem that he expended both his time and his cash in the most sordid and despicable sensuality; particularly in eating and drinking, in which he would indulge in the most unsocial manner, sitting whole days and nights by himself, in obscure houses of entertainment, over his bottle and trencher, immersed in filth and sloth, with scarce decent apparel; generally wrapped up in a horseman's great coat; and, on the whole, with his very homely countenance, and altogether, exhibiting an

object the most disgusting to the sight, if not to some other of the senses. Savage.

His wit and parts, however, still raised him new friends as fast as his misbehaviour lost him his old ones. Yet such was his conduct, that occasional relief only furnished the means of occasional excess; and he defeated all attempts made by his friends to fix him in a decent way. He was even reduced so low as to be destitute of a lodging; insomuch that he often passed his nights in those mean houses that are set open for casual wanderers; sometimes in cellars amidst the riot and filth of the most profligate of the rabble; and not seldom would he walk the streets till he was weary, and then lie down in summer on a bulk, or in winter with his associates among the ashes of a glass-house.

Yet, amidst all his penury and wretchedness, had this man so much pride, and so high an opinion of his own merit, that he ever kept up his spirits, and was always ready to repress, with scorn and contempt, the least appearance of any slight or indignity towards himself, in the behaviour of his acquaintance; among whom he looked upon none as his superior. He would be treated as an equal, even by persons of the highest rank. We have an instance of this preposterous and inconsistent pride, in his refusing to wait upon a gentleman who was desirous of relieving him when at the lowest ebb of distress, only because the message signified the gentleman's desire to see him at nine in the morning. Savage could not bear that any one should presume to prescribe the hour of his attendance, and therefore he absolutely rejected the proffered kindness. This life, unhappy as it may be already imagined, was yet rendered more unhappy, by the death of the queen, in 1738; which stroke deprived him of all hopes from the court. His pension was discontinued, and the insolent manner in which he demanded of Sir Robert Walpole

(A) Mr Boswell, in his life of Dr Johnson, has called in question the story of Savage's birth, and grounded his suspicion on two mistakes, or, as he calls them, falsehoods, which he thinks he has discovered in his friend's memoirs of that extraordinary man. Johnson has said, that the earl of Rivers was Savage's godfather, and gave him his own name; which, by his direction, was inserted in the register of the parish of St Andrew's, Holborn. Part of this, it seems, is not true; for Mr Boswell carefully inspected that register, but no such entry is to be found. But does this omission amount to a proof, that the person who called himself *Richard Savage* was an impostor, and not the son of the earl of Rivers and the countess of Macclesfield? Mr Boswell thinks it does; and, in behalf of his opinion, appeals to the maxim *verum in uno, falsum in omnibus*. The solidity of this maxim may be allowed by others; but it was not without surprise that, on such an occasion, we found it adopted by the biographer of Johnson. To all who have compared his view of a celebrated cause, with Stuart's letters on the same subject addressed to Lord Mansfield, it must be apparent, that, at one period of his life, he would not have deemed a thousand such mistakes sufficient to invalidate a narrative otherwise so well authenticated as that which relates the birth of Savage. The truth is, that the omission of the name in the register of St Andrew's may be easily accounted for, without bringing against the wretched Savage an accusation of imposture, which neither his mother nor her friends dared to urge when provoked to it by every possible motive that can influence human conduct. The earl of Rivers would undoubtedly give the direction about registering the child's name to the same person whom he entrusted with the care of his education; but that person, it is well known, was the countess of Macclesfield, who, as she had resolved from his birth to disown her son, would take care that the direction should not be obeyed.

That which, in Johnson's life of Savage, Mr Boswell calls a second falsehood, seems not to amount even to a mistake. It is there stated, that "Lady Macclesfield having lived for some time upon very uneasy terms with her husband, thought a public confession of adultery the most obvious and expeditious method of obtaining her liberty." This Mr Boswell thinks cannot be true; because, having perused the journals of both houses of parliament at the period of her divorce, he there found it authentically ascertained, that so far from voluntarily submitting to the ignominious charge of adultery, she made a strenuous defence by her counsel. But what is this to the purpose? Johnson has nowhere said, that she confessed her adultery at

Savage. Walpole to have it restored, for ever cut off this considerable supply; which possibly had been only delayed, and might have been recovered by proper application.

His distress now became so great, and so notorious, that a scheme was at length concerted for procuring him a permanent relief. It was proposed that he should retire into Wales, with an allowance of 50 l. *per annum*, on which he was to live privately, in a cheap place, for ever quitting his town-haunts, and resigning all farther pretensions to fame. This offer he seemed gladly to accept; but his intentions were only to deceive his friends, by retiring for a while, to write another tragedy, and then to return with it to London in order to bring it upon the stage.

In 1739, he set out for Swansea, in the Bristol stage-coach, and was furnished with 15 guineas to bear the expence of his journey. But, on the 14th day after his departure, his friends and benefactors, the principal of whom was no other than the great Mr Pope, who expected to hear of his arrival in Wales, were surprised with a letter from Savage, informing them that he was yet upon the road, and could not proceed for want of money. There was no other remedy than a remittance; which was sent him, and by the help of which he was enabled to reach Bristol, from whence he was to proceed to Swansea by water. At Bristol, however, he found an embargo laid upon the shipping; so that he could not immediately obtain a passage. Here, therefore, being obliged to stay for some time, he, with his usual facility, so ingratiated himself with the principal inhabitants, that he was frequently invited to their houses, distinguished at their public entertainments, and treated with a regard that highly gratified his vanity, and therefore easily engaged his affections. At length, with great reluctance, he proceeded to Swansea; where he lived about a year, very much dissatisfied with the

diminution of his salary; for he had, in his letters, treated his contributors so insolently, that most of them withdrew their subscriptions. Here he finished his tragedy, and resolved to return with it to London: which was strenuously opposed by his great and constant friend Mr Pope; who proposed that Savage should put this play into the hands of Mr Thomson and Mr Mallet, in order that they might fit it for the stage, that his friends should receive the profits it might bring in, and that the author should receive the produce by way of annuity. This kind and prudent scheme was rejected by Savage with the utmost contempt.—He declared he would not submit his works to any one's correction; and that he would no longer be kept in leading-strings. Accordingly he soon returned to Bristol, in his way to London; but at Bristol, meeting with a repetition of the same kind treatment he had before found there, he was tempted to make a second stay in that opulent city for some time. Here he was again not only caressed and treated, but the sum of 30 l. was raised for him, with which it had been happy if he had immediately departed for London; But he never considered that a frequent repetition of such kindness was not to be expected, and that it was possible to tire out the generosity of his Bristol friends, as he had before tired his friends everywhere else. In short, he remained here till his company was no longer welcome. His visits in every family were too often repeated; his wit had lost its novelty, and his irregular behaviour grew troublesome. Necessity came upon him before he was aware; his money was spent, his clothes were worn out, his appearance was shabby, and his presence was disgusting at every table. He now began to find every man from home at whose house he called; and he found it difficult to obtain a dinner. Thus reduced, it would have been prudent in him to have withdrawn from the place; but prudence and Savage were never acquainted.

the bar of either house of parliament, but only that her confession was *public*; and as he has taught us in his Dictionary, that whatever is *notorious* or *generally known* is *public*; public, in his sense of the word, that confession certainly was, if made to different individuals, in such a manner as showed that she was not anxious to conceal it from her husband, or to prevent its notoriety. She might, however, have very cogent reasons for denying her guilt before parliament, and for making a strenuous defence by her counsel; as indeed, had she acted otherwise, it is very little probable that her great fortune would have been restored to her, or that she could have obtained a second husband.

But Mr Boswell is of opinion, that the person who assumed the name of Richard Savage was the son of the shoemaker under whose care Lady Macclesfield's child was placed; because "his not being able to obtain payment of Mrs Lloyd's legacy must be imputed to his consciousness that he was not the real person to whom that legacy was left." He must have a willing mind who can admit this argument as a proof of imposture. Mrs Lloyd died when Savage was in his 10th year, when he certainly did not know or suspect that he was the person for whom the legacy was intended, when he had none to prosecute his claim, to shelter him from oppression, or to call in law to the assistance of justice. In such circumstances he could not have obtained payment of the money, unless the executors of the will had been inspired from heaven with the knowledge of the person to whom it was due.

To these and a thousand such idle cavils it is a sufficient answer, that Savage was acknowledged and patronized as Lady Macclesfield's son by Lord Tyrconnel, who was that lady's nephew; by Sir Richard Steel the intimate friend of colonel Brett, who was that lady's second husband; by the Queen, who, upon the authority of that lady and her creatures, once thought Savage capable of entering his *mother's* house in the night with an intent to murder her; and in effect by *the lady herself*, who at one time was prevailed upon to give him 50 l. and who fled before the Satire of the *Bastard*, without offering, either by herself or her friends, to deny that the author of that poem was the person whom he called himself, or to insinuate so much as that he might *possibly* be the son of a shoemaker. To Mr Boswell all this seems *strange*: to others, who look not with so keen an eye for supposititious births, we think it must appear *convincing*.

acquainted. He staid, in the midst of poverty, hunger, and contempt, till the mistress of a coffee-house, to whom he owed about eight pounds, arrested him for the debt. He remained for some time, at a great expence, in the house of the sheriff's officer, in hopes of procuring bail; which expence he was enabled to defray, by a present of five guineas from Mr Nash at Bath. No bail, however, was to be found; so that poor Savage was at last lodged in Newgate, a prison so named in Bristol.

But it was the fortune of this extraordinary mortal always to find more friends than he deserved. The keeper of the prison took compassion on him, and greatly softened the rigours of his confinement by every kind of indulgence; he supported him at his own table, gave him a commodious room to himself, allowed him to stand at the door of the gaol, and even frequently took him into the fields for the benefit of the air and exercise: so that, in reality, Savage endured fewer hardships in this place than he had usually suffered during the greatest part of his life.

While he remained in this not intolerable prison, his ingratitude again broke out, in a bitter satire on the city of Bristol; to which he certainly owed great obligations, notwithstanding the circumstances of his arrest; which was but the act of an individual, and that attended with no circumstances of injustice or cruelty. This satire he entitled *London and Bristol delineated*; and in it he abused the inhabitants of the latter, with such a spirit of resentment, that the reader would imagine he had never received any other than the most injurious treatment in that city.

When Savage had remained about six months in this hospitable prison, he received a letter from Mr Pope, (who still continued to allow him 20*l.* a-year) containing a charge of very atrocious ingratitude. What were the particulars of this charge we are not informed; but, from the notorious character of the man, there is reason to fear that Savage was but too justly accused. He, however, solemnly protested his innocence; but he was very unusually affected on this occasion. In a few days after, he was seized with a disorder, which at first was not suspected to be dangerous: but growing daily more languid and dejected, at last a fever seized him; and he expired on the 1*st* of August 1743, in the 46*th* year of his age.

Thus lived, and thus died, Richard Savage, Esq; leaving behind him a character strangely chequered with vices and good qualities. Of the former we have seen a variety of instances in this abstract of his life; of the latter, his peculiar situation in the world gave him but few opportunities of making any considerable display. He was, however, undoubtedly a man of excellent parts; and had he received the full benefits of a liberal education, and had his natural talents been cultivated to the best advantage, he might have made a respectable figure in life. He was happy in a quick discernment, a retentive memory, and a lively flow of wit, which made his company much coveted; nor was his judgment both of writings and of men inferior to his wit: but he was too much a slave to his passions, and his passions were too easily excited. He was warm in his friendships, but implacable in his enmity; and his greatest fault, which is indeed the greatest of all faults, was ingratitude. He seemed to think every thing due

to his merit; and that he was little obliged to any one for those favours which he thought it their duty to confer on him: it is therefore the less to be wondered at, that he never rightly estimated the kindness of his many friends and benefactors, or preserved a grateful and due sense of their generosity towards him.

The works of this original writer, after having long lain dispersed in magazines and fugitive publications, have been lately collected and published in an elegant edition, in 2 vols 8vo; to which are prefixed, the admirable Memoirs of Savage, written by Dr Samuel Johnson.

SAVAGE is a word so well understood as scarcely to require explanation. When applied to inferior animals, it denotes that they are wild, untamed, and cruel; when applied to man, it is of much the same import with *barbarian*, and means a person who is untaught and uncivilized, or who is in the rude state of uncultivated nature. That such men exist at present, and have existed in most ages of the world, is undeniable; but a question naturally occurs respecting the origin of this savage state, the determination of which is of considerable importance in developing the nature of man, and ascertaining the qualities and powers of the human mind. Upon this subject, as upon most others, opinions are very various, and the systems built upon them are consequently very contradictory. A large sect of ancient philosophers maintained that man sprung at first from the earth like his brother vegetables; that he was without ideas and without speech; and that many ages elapsed before the race acquired the use of language, or attained to greater knowledge than the beasts of the forest. Other sects again, with the vulgar, and almost all the poets, maintained that the first mortals were wiser and happier, and more powerful, than any of their offspring; that mankind, instead of being originally savages, and rising to the state of civilization by their own gradual and progressive exertions, were created in a high degree of perfection; that, however, they degenerated from that state, and that all nature degenerated with them. Hence the various ages of the world have almost everywhere been compared to gold, silver, brass, and iron, the golden having been always supposed to be the first age.

Since the revival of letters in Europe, and especially during the present century, the same question has been much agitated both in France and England, and by far the greater part of the most fashionable names in modern science have declared for the original savagism of men. Such of the ancients as held that opinion were countenanced by the atheistic cosmogony of the Phœnicians, and by the early history of their own nations; the moderns build their system upon what they suppose to be the constitution of the human mind, and upon the late improvements in arts and sciences. As the question must finally be decided by historical evidence, before we make our appeal to facts, we shall consider the force of the modern reasonings from the supposed innate powers of the human mind; for that reasoning is totally different from the other, and to blend them together would only prevent the reader from having an adequate conception of either.

Upon the supposition that all mankind were originally savages, destitute of the use of speech, and, in the strictest sense of the words, *mutum et turpe pecus*, the great

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great difficulty, is to conceive how they could emerge from that state, and become at last enlightened and civilized. The modern advocates for the universality of the savage state remove this difficulty by a number of instincts or internal senses, with which they suppose the human mind endowed, and by which the savage is, without reflection, not only enabled to distinguish between right and wrong, and prompted to do every thing necessary to the preservation of his existence, and the continuance of the species, but also led to the discovery of what will contribute, in the first instance, to the ease and accommodations of life. These instincts, they think, brought mankind together when the reasoning faculty, which had hitherto been dormant, being now roused by the collisions of society, made its observations upon the consequences of their different actions, taught them to avoid such as experience showed to be pernicious, and to improve upon those which they found beneficial; and thus was the progress of civilization begun. But this theory is opposed by objections which we know not how to obviate. The bundle of instincts with which modern idleness, under the denomination of philosophy, has so amply furnished the human mind, is a mere chimera. (See INSTINCT.) But granting its reality, it is by no means sufficient to produce the consequences which are derived from it. That it is not the parent of language, we have shown at large in another place (see LANGUAGE, n° 1—7.); and we have the confession of some of the ablest advocates for the original savagism of man, that large societies must have been formed before language could have been invented. How societies, at least large societies, could be formed and kept together without language, we have not indeed been told; but we are assured by every historian and every traveller of credit, that in such societies only have mankind been found civilized. Among known savages the social storge is very much confined; and therefore, had it been in the first race of men of as enlarged a nature, and as safe a guide, as the instinctive philosophers contend that it was, it is plain that those men could not have been savages. Such an appetite for society, and such a director of conduct, instead of enabling mankind to have emerged from savagism, would have effectually prevented them from ever becoming savage; it would have knit them together from the very first, and furnished opportunities for the progenitors of the human race to have begun the process of civilization from the moment that they dropt from the hands of their Creator. Indeed, were the modern theories of internal senses and social affections well founded, and were these senses and affections sufficient to have impelled the first men into society, it is not easy to be conceived how there could be at this day a savage tribe on the face of the earth. Natural causes, operating in the same direction and with the same force, must in every age produce the same effects; and if the social affections of the first mortals impelled them to society, and their reasoning faculties immediately commenced the process of civilization, surely the same affections and the same faculties would in a greater or less degree have had the same effect in every age and on every tribe of their numerous offspring; and we should everywhere observe mankind advancing in civilization, instead of standing still as they often do, and sometimes retreating by a retrograde motion. This, however, is far from being the case. Hordes of savages exist in al-

most every quarter of the globe; and the Chinese, who have undoubtedly been in a state of civilization for at least 2000 years, have during the whole of that long period been absolutely stationary, if they have not lost some of their ancient arts. (See PORCELAIN.) The origin of civilization, therefore, is not to be looked for in human instincts or human propensities, carrying men forward by a natural progress; for the supposition of such propensities is contrary to fact; and by fact and historical evidence, in conjunction with what we knew of the nature of man, must this great question be at last decided.

In the article RELIGION, n° 7. it has been shewn that the first men, if left to themselves without any instruction, instead of living the life of savages, and in process of time advancing towards civilization, must have perished before they acquired even the use of some of their senses. In the same article it has been shown (n° 14—17.), that Moses, as he is undoubtedly the oldest historian extant, wrote likewise by immediate inspiration; and that therefore, as he represents our first parents and their immediate descendants as in a state far removed from that of savages, it is vain to attempt to deduce the originality of such a state from hypothetical theories of human nature. We have, indeed, heard it observed by some of the advocates for the antiquity and universality of the savage state, that to the appeal to revelation they have no objection, provided we take the Mosaic account as it stands, and draw not from it conclusions which it will not support.

They contend, at the same time, that there is no argument fairly deducible from the book of Genesis which militates against their position. Now we beg leave to remark, that besides the reasoning which we have already used in the article just referred to, we have as much positive evidence against their position as the nature of the Mosaic history could be supposed to afford.

We are there told that God created man after his own image; that he gave him dominion over every thing in the sea, in the air, and over all the earth; that he appointed for his food various kinds of vegetables; that he ordained the Sabbath to be observed by him, in commemoration of the works of creation; that he prepared for him a garden to till and to dress; and that, as a test of his religion and submission to his Creator, he forbade him, under severe penalties, to eat of a certain tree in that garden. We are then told that God brought to him every animal which had been created; and we find that Adam was so well acquainted with their several natures as to give them names. When too an helpmate was provided for him, he immediately acknowledged her as bone of his bone, flesh of his flesh, and called her *woman*, because she was taken out of man.

How these facts can be reconciled to a state of ignorant savagism is to us absolutely inconceivable; and it is indeed strange, that men who profess Christianity should appeal to reason, and stick by its decision on a question which revelation has thus plainly decided against them. But it is agreeable to their theory to believe that man rose by slow steps to the full use of his reasoning powers. To us, on the other hand, it appears equally plausible to suppose that our first parents were created, not in full maturity, but mere infants, and that they went through the tedious process of childhood and youth,

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savage. youth, &c. as to suppose that their minds were created weak, uninformed, and uncivilized, as are those of savages,

But if it be granted that Adam had a tolerable share of knowledge, and some civilization, nothing can be more natural than to suppose that he would teach his descendants what he knew himself; and if the Scriptures are to be believed, we are certain that some of them possessed more than savage knowledge, and better than savage manners. But instead of going on to further perfection, as the theory of modern philosophers would lead us to suppose, we find that mankind degenerated in a most astonishing degree; the causes of which we have already in part developed in the article POLYTHEISM, n° 4, &c.

This early degeneracy of the human race, or their sudden progress towards ignorance and savagism, appears to lead to an important consequence. If men so very soon after their creation, possessing, as we have seen they did, a considerable share of knowledge and of civilization, instead of improving in either, degenerated in both respects, it would not appear that human nature has that strong propensity to refinement which many philosophers imagine; or that had all men been originally savage, they would have civilized themselves by their own exertions.

Of the ages before the flood we have no certain account anywhere but in Scripture; where, though we find mankind represented as very wicked, we have no reason to suppose them to have been absolute savages. On the contrary, we have much reason, from the short account of Moses, to conclude that they were far advanced in the arts of civil life. Cain, we are told, built a city; and two of his early descendants invented the harp and organ, and were artificers in brass and iron. Cities are not built, nor musical instruments invented, by savages, but by men highly cultivated: and surely we have no reason to suppose that the righteous posterity of Seth were behind the apostate descendants of Cain in any branch of knowledge that was really useful. That Noah and his family were far removed from savagism, no one will controvert who believes that with them was made a new covenant of religion; and it was unquestionably their duty, as it must otherwise have been their wish, to communicate what knowledge they possessed to their posterity. Thus far then every consistent Christian, we think, must determine against original and universal savagism.

In the preliminary discourse to Sketches of the History of Man, Lord Kames would infer, from some facts which he states, that many pairs of the human race were at first created, of very different forms and natures, but all depending entirely on their own natural talents. But to this statement he rightly observes, that the Mosaic account of the Creation opposes insuperable objections. "Whence then (says his Lordship) the degeneracy of all men into the savage state? To account for that dismal catastrophe, mankind must have suffered some dreadful convulsion." Now, if we mistake not, this is taking for granted the very thing to be proved. We deny that at any period since the creation of the world, all men were sunk into the state of savages; and that they were, no proof has yet been brought, nor do we know of any that can be brought, unless our fashionable philosophers choose to prop their

theories by the buttress of Sanchoniatho's Phenician cosmogony. (See SANCHONIATHO.) His Lordship, however, goes on to say, or rather to *suppose*, that the confusion at Babel, &c. was this dreadful convulsion: For, says he, "by confounding the language of men, and scattering them abroad upon the face of all the earth, they were rendered savages." Here again we have a positive assertion, without the least shadow of proof; for it does not at all appear that the confusion of language, and the scattering abroad of the people, was a circumstance such as could induce universal savagism. There is no reason to think that all the men then alive were engaged in building the tower of Babel; nor does it appear from the Hebrew original that the language of those who were engaged in it was so much changed as the reader is apt to infer from our English version. (See PHILOLOGY, n° 8—16.) That the builders were *scattered*, is indeed certain; and if any of them were driven, in very small tribes, to a great distance from their brethren, they would in process of time inevitably become savages. (See POLYTHEISM, n° 4—6, and LANGUAGE, n° 7.) but it is evident, from the Scriptural account of the peopling of the earth, that the descendants of Shem and Japheth were not scattered over the face of all the earth, and that therefore they could not be rendered savage by the catastrophe at Babel. In the chapter which relates that wonderful event, the generations of Shem are given in order down to Abram; but there is no indication that they had suffered with the builders of the tower, or that any of them had degenerated into the state of savages. On the contrary, they appear to have possessed a considerable degree of knowledge; and if any credit be due to the tradition which represents the father of Abraham as a statuary, and himself as skilled in the science of astronomy, they must have been far advanced in the arts of refinement. Even such of the posterity of Ham as either emigrated or were driven from the plain of Shinar in large bodies, so far from sinking into savagism, retained all the accomplishments of their antediluvian ancestors, and became afterwards the instructors of the Greeks and Romans. This is evident from the history of the Egyptians and other eastern nations, who in the days of Abraham were powerful and highly civilized. And that for many ages they did not degenerate into barbarism, is apparent from its having been thought to exalt the character of Moses, that he was learned in all the wisdom of the Egyptians, and from the wisdom of Solomon having been said to excel all the wisdom of the east country and of Egypt.

Thus decided are the Scriptures of the Old Testament against the universal prevalence of savagism in that period of the world; nor are the most authentic Pagan writers of antiquity of a different opinion. Mochus the Phenician*, Democritus, and Epicurus, appear to be* Strabo, the first champions of the savage state, and they are lib. xvii. followed by a numerous body of poets and rhapsodists, Diog. Laert. Vita Democ. et Vita Epicuri. among the Greeks and Romans, who were unquestionably devoted to fable and fiction. The account which they have given of the origin of man, the reader will find in another place (see THEOLOGY, Part i. sect. 1.): But we hardly think that he will employ it in support of the fashionable doctrine of original savagism. Against the wild reveries of this school are posted all the leaders of the other sects, Greeks and barbarians; the philosophers

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fophers of both Academies, the sages of the Italian and Alexandrian schools; the magi of Persia; the Bramins of India, and the Druids of Gaul, &c. The testimony of the early historians among all the ancient nations, indeed, who are avowedly fabulists, is very little to be depended on, and has been called in question by the most judicious writers of Pagan antiquity. (See *Plutarch Vita Thes. sub init. Thucyd.* l. i. cap. i. *Strabo*, l. ii. p. 507. *Livy Pref.* and *Varro ab. August de Civ. Dei.*) The more populous and extensive kingdoms and societies were civilized at a period prior to the records of profane history: the presumption, therefore, without taking revelation into the account, certainly is, that they were civilized from the beginning. This is rendered further probable from other circumstances. To account for their system, the advocates of savagism are obliged, as we have seen, to have recourse to numerous suppositions. They imagine, that since the creation dreadful convulsions have happened, which have spread ruin and devastation over the earth, which have destroyed learning and the arts, and brought on savagism by one sudden blow. But this is reasoning at random, and without a vestige of probability: for the only convulsion that can be mentioned is that at Babel, which we have already shewn to be inadequate.

Further, it does not appear that any people who were once civilized, and in process of time had degenerated into the savage or barbarous state, have ever recovered their pristine condition without foreign aid. From whence we conclude, that man, once a savage, would never have raised himself from that hopeless state. This appears evident from the history of the world; for that it requires strong incitements to keep man in a very high state of knowledge and civilization, is evident from what we know of the numerous nations which were famed in antiquity, but which are now degenerated in an astonishing degree. That man cannot, or, which is the same thing, has not risen from barbarism to civilization and science by his own efforts and natural talents, appears further from the following facts. The rudiments of all the learning, religion, laws, arts, and sciences, and other improvements that have enlightened Europe, a great part of Asia, and the northern coast of Africa, were so many rays diverging from two points, on the banks of the Euphrates and the Nile. In proportion as nations receded from these two sources of humanity and civilization, in the same proportion were they more and more immersed in ignorance and barbarism. The Greeks had made no progress towards civilization when the Titans first, and afterwards colonies from Egypt and Phenicia, taught them the very elements of science and urbanity*.

* See 77.

dun.

The aborigines of Italy were in the same state prior to the arrival of the Pelasgi, and the colonies from Arcadia and other parts of Greece. Spain was indebted for the first seeds of improvement to the commercial spirit of the Phenicians. The Gauls, the Britons, and the Germans, derived from the Romans all that in the early periods of their history they knew of science, or the arts of civil life, and so on of other nations in antiquity. The same appears to be the case in modern times. The countries which have been discovered by the restless and inquisitive spirit of Europeans have been generally found in the lowest state of savagism; from which, if they have emerged at all, it has been exactly in proportion to their connection with the inha-

bitants of Europe. Even western Europe itself, when sunk in ignorance, during the reign of monkery, did not recover by the efforts of its own inhabitants. Had not the Greeks, who in the 15th century took refuge in Italy from the cruelty of the Turks, brought with them their ancient books, and taught the Italians to read them, we who are disputing about the origin of the savage state, and the innate powers of the human mind, had at this day been gross and ignorant savages ourselves, incapable of reasoning with accuracy upon any subject. That we have now advanced far before our masters is readily admitted; for the human mind, when put on the right track, and spurred on by emulation and other incitements, is capable of making great improvements: but between improving science, and emerging from savagism, every one perceives there is an immense difference.

Lord Kames observes, that the people who inhabit a grateful soil, where the necessaries of life are easily procured, are the first who invent useful and ingenious arts, and the first who figure in the exercises of the mind. But the Egyptians and Chaldeans, who are thought to support this remark, appear from what we have seen to have derived their knowledge from their antediluvian progenitors, and not from any advantages of situation or strength of genius. Besides, the inhabitants of a great part of Africa, of North and South America, and of many of the islands lately discovered, live in regions equally fertile, and equally productive of the necessaries of life, with the regions of Chaldee and Egypt; yet these people have been savages from time immemorial, and continue still in the same state. The Athenians, on the other hand, inhabited the most barren and ungrateful region of Greece, while their perfection in the arts and sciences has never been equalled. The Norwegian colony, which settled in Iceland about the beginning of the 8th century, inhabited a most bleak and barren soil, and yet the fine arts were eagerly cultivated in that dreary region when the rest of Europe was sunk in ignorance and barbarism. Again, there are many parts of Africa, and of North and South America, where the soil is neither so luxuriant as to beget indolence, nor so barren and ungrateful as to depress the spirits by labour and poverty; where, notwithstanding, the inhabitants still continue in an uncultured state. From all which, and from numerous other instances which our limits permit us not to bring forward, we infer that some external influence is necessary to impel towards civilization savages; and that in the history of the world, or the nature of the thing, we find no instance of any people emerging from barbarism by the progressive efforts of their own genius. On the contrary, as we find in societies highly cultivated and luxurious a strong tendency to degenerate, so in savages we not only find no mark of tendency to improvement, but rather a rooted aversion to it. Among them, indeed, the social appetite never reaches beyond their own horde. It is, therefore, too weak and too confined to dispose them to unite in large communities; and of course, had all mankind been once in the savage state, they never could have arrived at any considerable degree of civilization.

Instead of truiting to any such natural progress, as is contended for, the Providence of Heaven, in pity to the human race, appears at different times, and in different

ferent countries, to have raised up some persons endowed with superior talents, or, in the language of poetry, some heroes, demi-gods, or god-like men, who having themselves acquired some knowledge in nations already civilized, by useful inventions, legislation, religious institutions, and moral arrangements, sowed the first seeds of civilization among the hordes of wandering disunited barbarians. Thus we find the Chinese look up to their Fohee, the Indians to Brahma, the Persians to Zoroaster, the Chaldeans to Oanes, the Egyptians to Thoth, the Phenicians to Melicerta, the Scandinavians to Odin, the Italians to Janus, Saturn, and Picus, and the Peruvians to Manco. In later times, and almost within our own view, we find the barbarous nations of Russia reduced to some order and civilization by the astonishing powers and exertions of Peter the Great. The endeavours of succeeding monarchs, and especially of the present empress, have powerfully contributed to the improvement of this mighty empire. In many parts of it, however, we still find the inhabitants in a state very little superior to savagism; and through the most of it, the lower, and perhaps the middling orders, appear to retain an almost invincible aversion to all further progress*. A fact which, when added to numerous others of a similar nature which occur in the history of the world, seems to prove indisputably that there is no such natural propensity to improvement in the human mind as we are taught by some authors to believe. The origin of savagism, if we allow mankind to have been at first civilized, is easily accounted for by natural means: The origin of civilization, if at any period the whole race were savages, cannot, we think, be accounted for otherwise than by a miracle, or repeated miracles.

To many persons in the present day, especially, the doctrine we have now attempted to establish, will appear very humiliating; and perhaps it is this alone that has prevented many from giving the subject so patient a hearing as its importance seems to require. It is a fashionable kind of philosophy to attribute to the human mind very pre-eminent powers; which so flatter our pride, as in a great measure, perhaps, to pervert our reason, and blind our judgment. The history of the world, and of the dispensations of God to man, are certainly at variance with the popular doctrine respecting the origin of civilization: for if the human mind be possessed of that innate vigour which that doctrine attributes to it, it will be extremely difficult to account for those numerous facts which seem with irresistible evidence to proclaim the contrary; for that unceasing care with which the Deity appears to have watched over us; and for those various and important revelations He has vouchsafed to us. Let us rejoice and be thankful that we are men, and that we are Christians; but let not a vain philosophy tempt us to imagine that we are angels or gods.

SAVAGE Island, one of the small islands in the South Sea, lying in S. Lat. 19. 1. W. Long. 169. 37. It is about seven leagues in circuit, of a good height, and has deep water close to its shores. Its interior parts are supposed to be barren, as there was no soil to be seen upon the coast; the rocks alone supplying the trees with humidity. The inhabitants are exceedingly warlike and fierce, so that Captain Cook could not have any intercourse with them.

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SAVANNA-LA-MAR, a town of Jamaica, situated in the county of Cornwall in that island.—It is the county-town, where the assize courts are held, the last Tuesdays in March, June, September, and December. It has lately been ornamented by an elegant court-house, and contains about one hundred other houses. It belongs to Westmoreland parish, in which are 89 sugar-estates, 106 other estates, and 18,000 slaves.

SAVANNAH, the capital of the country of Georgia in North America, situated in W. Long. 101. 20. N. Lat. 32. 0.

SAVARY (James), an eminent French writer on the subject of trade, was born at Done, in Anjou, in 1622. Being bred to merchandize, he continued in trade until 1658; when he left off the practice, to cultivate the theory. He had married in 1650; and in 1660, when the king declared a purpose of assigning privileges and pensions to such of his subjects as had twelve children alive, Mr Savary was not too rich to put in his claim to the royal bounty. He was afterwards admitted of the council for the reformation of commerce; and the orders which passed in 1670 were drawn up by his instructions and advice. He wrote *Le Parfait Negociant*, 4to; and, *Avis et conseils sur les plus importantes matieres du Commerce*, in 4to. He died in 1690; and out of 17 children whom he had by one wife, left 11. Two of his sons, James and Philemon Lewis, laboured jointly on a great work, *Dictionnaire Universelle du Commerce*, 2 vols folio. This work was begun by James, who was inspector-general of the manufactures at the customhouse, Paris; who called in the assistance of his brother Philemon Lewis, although a canon of the royal church of St Maur; and by his death left him to finish it. This work appeared in 1723, and Philemon afterwards added a third supplemental volume to the former. Postlethwayte's English Dictionary of Trade and Commerce is a translation, with considerable improvements, from Savary.

SAVARY, an eminent French traveller and writer, was born at Vitre, in Brittany, about the year 1748. He studied with applause at Rennes, and in 1776 travelled into Egypt, where he remained almost three years. During this period he was wholly engaged in the study of the Arabian language, in searching out ancient monuments, and in examining the national manners. After making himself acquainted with the knowledge and philosophy of Egypt, he visited the islands in the Archipelago, where he spent 18 months. On his return to France, in 1780, he published, 1. A Translation of the Koran, with a short Life of Mahomet, in 1783, 2 vols 8vo. 2. The Morality of the Koran, or a collection of the most excellent maxims in the Koran; a work extracted from his translation, which is esteemed both elegant and faithful. 3. Letters on Egypt, in 3 vols 8vo, in 1785. In these the author makes his observations with accuracy, paints with vivacity, and renders interesting every thing he relates. His descriptions are in general faithful, but are perhaps in some instances too much ornamented. He has been justly censured for painting modern Egypt and its inhabitants in too high colours. These letters, however, were bought up by the curious public, and read with pleasure and advantage. Encouraged by this flattering reception, he prepared his letters upon Greece. He died

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la-Mar
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Savary,
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soon after at Paris of a malady contracted from too intense application. A sensible obstruction in the right lobe of the liver had made a decisive progress, which the return of summer, some simple medicines, a strict regimen, and travelling, seemed to remove.

On his return into the country adjacent to Paris, his health however was still doubtful; for it is well known that when the organization of one of the viscera has been much deranged, deep traces of it will ever remain. His active mind, however, made him regardless of his health, and he conceived it his duty to profit by those appearances of recovery which he experienced at the close of the summer and the beginning of autumn, to put into order his travels into the islands of the Archipelago, intended as a continuation of his letters on Egypt. His warmth of temper was exasperated by some lively criticisms which had been made on his former productions, and he gave himself up to study with a degree of activity of which the consequences were sufficiently obvious. An obstruction in the liver again took place, and made a new progress; his digestion became extremely languid; sleep quite forsook him, both by night and by day; a dry and troublesome cough came on; his face appeared bloated, and his legs more and more inflamed. The use of barley water and cream of tartar still however promoted, in some degree, the urinary secretions, and afforded some little glimmering of hope. In this situation he returned to Paris in the beginning of the year 1788, to attend to the publication of his new work concerning the islands of the Archipelago, particularly the isle of Candia. He had then all the symptoms of a dangerous dropsy, which became still more alarming from the very exhausted state of the viscera. The right lobe of the liver was extremely hard and sensible. The patient had shiverings without any regular returns, and his strength was undermined by a hectic fever. At the same time still more uneasy symptoms took place, those of a dropsy in the chest; but the circumstances which destroyed all hope, and announced his approaching dissolution, were a severe pain in the left side, with a very troublesome cough, and a copious and bloody expectoration (*in hepaticis*, says Hippocrates, *sputum cruentum mortiferum*); his respiration became more and more difficult; his strength was exhausted, and his death took place on the 4th of February 1788, attended with every indication of the most copious overflowing in the chest, and of an abscess in the liver.—Thus was destroyed, in the vigour of his age, an author whose character and talents rendered him worthy of the happiest lot.

Mr Savary's genius was lively and well cultivated; his heart warm and benevolent; his imagination vigorous; his memory retentive. He was cheerful and open; and had so great a talent for telling a story, that his company was not less agreeable than instructive. He did not mingle much with the world, but was satisfied with performing well the duties of a son, of a brother, and of a friend.

SAUCISSE, or SAUCISSON, in mining, is a long pipe or bag made of cloth well pitched, or sometimes of leather, of about an inch and an half diameter, filled with powder, going from the chamber of the mine to the entrance of the gallery. It is generally placed in a wooden pipe called an *auget*, to prevent its grow-

ing damp. It serves to give fire to mines, caissons, bomb-chests, &c.

SAUCISSON, is likewise a kind of fascine, longer than the common ones; they serve to raise batteries and to repair breaches. They are also used in making epaulements, in stopping passages, and in making traverses over a wet ditch, &c.

SAVE, a river of Germany, which has its source in Upper Carniola, on the frontiers of Carinthia.—It runs through Carniola from west to east, afterwards separates Sclavonia from Croatia, Bosnia, and part of Servia, and then falls into the Danube at Belgrade.

SAVER-KROUT. See CROUTE.

SAVERNAKE-FOREST is situated near Marlborough in Wiltshire, and is 12 miles in circumference, well stocked with deer, and delightful from the many vistas cut through the woods and coppices with which it abounds. Eight of these vistas meet, like the rays of a star, in a point near the middle of the forest, where an octagon tower is erected to correspond with the vistas; through one of which is a view of Tottenham Park, Lord Ailesbury's seat, a stately edifice erected after the model, and under the direction, of our modern Vitruvius, the Earl of Burlington, who to the strength and convenience of the English architecture has added the elegance of the Italian.

SAVILLE (Sir George), afterwards marquis of Halifax, and one of the greatest statesmen of his time, was born about the year 1630; and some time after his return from his travels was created a peer, in consideration of his own and his father's merits. He was a strenuous opposer of the bill of exclusion; but proposed such limitations of the duke of York's authority, as should disabie him from doing any harm either in church or state, as the taking out of his hands all power in ecclesiastical matters, the disposal of the public money, and the power of making peace and war; and lodging these in the two houses of parliament. After that bill was rejected in the house of lords, he pressed them, though without success, to proceed to the limitation of the duke's power; and began with moving, that during the king's life he might be obliged to live five hundred miles out of England. In August 1682 he was created a marquis, and soon after made privy-seal. Upon King James's accession, he was made president of the council; but on his refusal to consent to the repeal of the test, he was dismissed from all public employments. In that assembly of the lords which met after king James's withdrawing himself the first time from Whitehall, the marquis was chosen their president; and upon the king's return from Feverham, he was sent, together with the earl of Shrewsbury and lord Delamere, from the Prince of Orange, to order his majesty to quit the palace at Whitehall. In the convention of parliament he was chosen speaker of the house of lords, and strenuously supported the motion for the vacancy of the throne, and the conjunctive sovereignty of the prince and princess; upon whose accession he was again made privy-seal. Yet, in 1689, he quitted the court, and became a zealous opposer of the measures of government till his death, which happened in April 1695. The rev. Mr Grainger observes, that "he was a person of unsettled principles, and of a lively imagination, which sometimes got the better of his judgment. He would never lose

Saucisse
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Savile.

his jest, though it spoiled his argument, or brought his sincerity or even his religion in question. He was deservedly celebrated for his parliamentary talents; and in the famous contest relating to the bill of exclusion was thought to be a match for his uncle Shaftsbury. The pieces he has left us show him to have been an ingenious, if not a masterly writer; and his *Advice to a Daughter* contains more good sense in fewer words than is, perhaps, to be found in any of his contemporary authors." His lordship also wrote, *The Anatomy of an Equivalent*; a *Letter to a Dissenter*; a *Rough Draught of a New Model at Sea*; and *Maxims of State*; all which were printed together in one volume 8vo.—Since these were also published under his name the *Character of king Charles II.* 8vo; the *Character of Bishop Burnet*, and *Historical Observations upon the reigns of Edward I. II. III. and Richard II.* with *Remarks upon their faithful Counsellors and false Favourites*.

SAVIN, in botany. See JUNIPERUS.

SAVIOUR, an appellation peculiarly given to Jesus Christ, as being the Messiah and Saviour of the world. See JESUS.

Order of St SAVIOUR, a religious order of the Romish Church, founded by St Bridget, about the year 1345, and so called from its being pretended that our Saviour himself declared its constitution and rules to the foundress. According to the constitutions, this is principally founded for religious women who pay a particular honour to the holy virgin; but there are some monks of the order, to administer the sacrament and spiritual assistance to the nuns.

SAUL the son of Kish, of the tribe of Benjamin, was the first king of the Israelites. On account of his disobedient conduct, the kingdom was taken from his family, and given to David. See the First Book of Samuel.

SAUL, otherwise called Paul. See PAUL.

SAUMUR, a considerable town of France, in Anjou, and capital of the Saumarois, with an ancient castle. The town is small, but pleasantly situated on the Loire, across which is a long bridge, continued through a number of islands. Saumur was anciently a most important pass over the river, and of consequence was frequently and fiercely disputed by either party, during the civil wars of France in the sixteenth century. The fortifications are of great strength, and Henry the Fourth, on the reconciliation which took place between him and Henry the Third, near Tours, in 1589, demanded that Saumur should be delivered to him, as one of the cities of safety. The castle overlooks the town and river. It is built on a lofty eminence, and has a venerable and magnificent appearance, and was lately used as a prison of state, where persons of rank were frequently confined. The Kings of Sicily, and Dukes of Anjou of the house of Valois, who descended from John king of France, often resided in the castle of Saumur, as it constituted a part of their Angevin dominions. E. Long. o. 2. N. Lat. 47. 10.

SAUNDERS, a kind of wood brought from the East Indies, of which there are three kinds; white, yellow, and red. See PTEROCARPUS and SANTALUM.

SAUNDERSON (Dr Robert), an eminent casuist, was born at Rotherham in Yorkshire on the 19th September 1587, and was descended of an ancient fa-

mily. He attended the grammar-school at Rotherham, Saunderson, where he made such wonderful proficiency in the languages, that at 13 it was judged proper to send him to Lincoln college, Oxford. In 1608 he was appointed logic reader in the same college. He took orders in 1611, and was promoted successively to several benefices. Archbishop Laud recommended him to king Charles I. as a profound casuist; and that monarch, who seems to have been a great admirer of casuistical learning, appointed him one of his chaplains in 1631. Charles proposed several cases of conscience to him, and received so great satisfaction from his answers, that at the end of his month's attendance he told him, that he would wait with impatience during the intervening 11 months, as he was resolved to be more intimately acquainted with him, when it would again be his turn to officiate. The king regularly attended his sermons, and was wont to say, that "he carried his ears to hear other preachers, but his conscience to hear Mr Saunderson."

In 1642 Charles created him regius professor of divinity at Oxford, with the canonry of Christ church annexed: but the civil wars prevented him till 1646 from entering on the office; and in 1648 he was ejected by the visitors which the parliament had commissioned. He must have stood high in the public opinion; for in the same year in which he was appointed professor of divinity, both houses of parliament recommended him to the king as one of their trustees for settling the affairs of the church. The king, too, reposed great confidence in his judgment, and frequently consulted him about the state of his affairs. When the parliament proposed the abolition of the episcopal form of church-government as incompatible with monarchy, Charles desired him to take the subject under his consideration and deliver his opinion. He accordingly wrote a treatise entitled, *Episcopacy as established by law in England not prejudicial to regal power*. At taking leave, the king advised him to publish *Cases of Conscience*: he replied, that "he was now grown old and unfit to write cases of conscience." The king said, "it was the simplest thing he ever had heard from him; for no young man was fit to be a judge, or write cases of conscience." Walton, who wrote the life of Dr Saunderson, informs us, that in one of these conferences the king told him (Dr Saunderson), or one of the rest who was then in company, that "the remembrance of two errors did much affect him; which were his assent to the earl of Strafford's death, and the abolishing of episcopacy in Scotland; and that if God ever restored him to the peaceable possession of his crown, he would prove his repentance by a public confession and a voluntary penance, by walking barefoot from the Tower of London, or Whitehall, to St Paul's church, and would desire the people to intercede with God for his pardon."

Dr Saunderson was taken prisoner by the parliament's troops and conveyed to Lincoln, in order to procure in exchange a Puritan divine named Clark, whom the king's army had taken. The exchange was agreed to, on condition that Dr Saunderson's living should be restored, and his person and property remain unmolested. The first of these demands was readily complied with: and a stipulation was made, that the second should be observed; but it was impossible to restrain the licentiousness of the soldiers. They entered

Saunderson's church in the time of divine service, interrupted him when reading prayers, and even had the audacity to take the common prayer book from him, and to tear it to pieces.

The Honourable Mr Boyle, having read a work of Dr Saunderson's entitled *De juramenti obligatione*, was so much pleased, that he inquired at Bishop Barlow, whether he thought it was possible to prevail on the author to write *Cases of Conscience*, if an honorary pension was assigned him to enable him to purchase-books, and pay an amanuensis. Saunderson told Barlow, "that if any future tract of his could be of any use to mankind, he would cheerfully set about it without a pension." Boyle, however, sent him a present of 50l, sensible no doubt, that, like the other royalists, his finances could not be great. Upon this Saunderson published his book *De Conscientia*.

When Charles II. was reinstated in the throne, he recovered his professorship and canonry, and soon after was promoted to the bishopric of Lincoln. During the two years and a half in which he possessed this new office, he spent a considerable sum in augmenting poor vicarages, in repairing the palace at Bugden, &c. He died January 29. 1662-3, in his 76th year.

He was a man of great acuteness and solid judgment. "That staid and well-weighed man Dr Saunderson (says Dr Hammond) conceives all things deliberately, dwells upon them discreetly, discerns things that differ exactly, passeth his judgment rationally, and expresses it aptly, clearly, and honestly." Being asked, what books he had read most? he replied, that "he did not read many books, but those which he did read were well chosen and frequently perused." These, he said, were chiefly three, Aristotle's *Rhetoric*, Aquinas's *Secunda Secunda*, and Tully's *Works*; especially his *Offices*, which he had not read over less than 20 times, and could even, in his old age, recite without book." He added, that "the learned civilian Dr Zouch had written *Elementa juris prudentie*, which he thought he could also say without book, and that no wise man could read it too often." He was not only conversant with the fathers and schoolmen, with casuistical and controversial divinity; but he was well acquainted with all the histories of the English nation, was a great antiquary, had searched minutely into records, and was well skilled in heraldry and genealogy.

It will now be proper to give a short account of his works. 1. In 1615 he published *Logica Artis Compendium*, which was the system of lectures he had delivered in the University when he was logic-reader. 2. *Sermons*, amounting in number to 36, printed in 1681, folio, with the author's life by Walton. 3. *Nine Cases of Conscience resolved*; first collected in one volume, in 1678, 8vo. 4. *De juramenti obligatione*. This book was translated into English by Charles I. while a prisoner in the Isle of Wight, and printed at London in 1665, 8vo. 5. *De Obligatione conscientia*. 6. *Censure of Mr Antony Ascham his book of the confusions and revolutions of government*. 7. *Pax Ecclesie* concerning Predestination, or the five points. 8. *Episcopacy*, as established by law in England, not prejudicial to the regal power, in 1661. Besides these, he wrote two Discourses in defence of Usher's writings.

SAUNDERSON (Dr Nicolas), was born at Thurlstone in Yorkshire in 1682, and may be considered as a

prodigy for his application and success in mathematical literature in circumstances apparently the most unfavourable. He lost his sight by the small-pox before he was a year old. But this disaster did not prevent him from searching after that knowledge for which nature had given him so ardent a desire. He was initiated into the Greek and Roman authors at a free-school at Pen-nistone. After spending some years in the study of the languages, his father (who had a place in the excise) began to teach him the common rules of arithmetic. He soon surpassed his father; and could make long and difficult calculations, without having any sensible marks to assist his memory. At 18 he was taught the principles of algebra and geometry by Richard West of Underbank, Esq; who, though a gentleman of fortune, yet, being strongly attached to mathematical learning, readily undertook the education of so uncommon a genius. Saunderson was also assisted in his mathematical studies by Dr Nettleton. These two gentlemen read books to him and explained them. He was next sent to a private academy at Attercliff near Sheffield, where logic and metaphysics were chiefly taught. But these sciences not suiting his turn of mind, he soon left the academy. He lived for some time in the country without any instructor; but such was the vigour of his own mind, that few instructions were necessary: he only required books and a reader.

His father, besides the place he had in the excise, possessed also a small estate; but having a numerous family to support, he was unable to give him a liberal education at one of the universities. Some of his friends, who had remarked his perspicuous and interesting manner of communicating his ideas, proposed that he should attend the university of Cambridge as a teacher of mathematics. This proposal was immediately put in execution; and he was accordingly conducted to Cambridge in his 25th year by Mr Joshua Dunn, a fellow-commoner of Christ's college. Though he was not received as a member of the college, he was treated with great attention and respect. He was allowed a chamber, and had free access to the library. Mr Whiston was at that time professor of mathematics; and as he read lectures in the way that Saunderson intended, it was naturally to be supposed he would view his project as an invasion of his office. But, instead of meditating any opposition, the plan was no sooner mentioned to him than he gave his consent. Saunderson's reputation was soon spread through the university. When his lectures were announced, a general curiosity was excited to hear such intricate mathematical subjects explained by a man who had been blind from his infancy. The subject of his lectures was the *Principia Mathematica*, the *Optics*, and *Arithmetica Universalis* of Sir Isaac Newton. He was accordingly attended by a very numerous audience. It will appear at first incredible to many that a blind man should be capable of explaining optics, which requires an accurate knowledge of the nature of light and colours; but we must recollect, that the theory of vision is taught entirely by lines, and is subject to the rules of geometry.

While thus employed in explaining the principles of the Newtonian philosophy, he became known to its illustrious author. He was also intimately acquainted with Halley, Cotes, De Moivre, and other eminent mathematicians. When Whiston was removed from his professor-

son, professorship, Saunderson was universally allowed to be the man best qualified for the succession. But to enjoy this office, it was necessary, as the statutes direct, that he should be promoted to a degree. To obtain this privilege the heads of the university applied to their chancellor the duke of Somerset, who procured the royal mandate to confer upon him the degree of master of arts. He was then elected Lucasian professor of mathematics in November 1711. His inauguration speech was composed in classical Latin, and in the style of Cicero, with whose works he had been much conversant. He now devoted his whole time to his lectures, and the instruction of his pupils. When George II. in 1728, visited the University of Cambridge, he expressed a desire to see Professor Saunderson. In compliance with this desire, he waited upon his majesty in the senate-house, and was there, by the king's command, created doctor of laws. He was admitted a member of the Royal Society in 1736.

Saunderson was naturally of a vigorous constitution; but having confined himself to a sedentary life, he at length became scorbutic. For several years he felt a numbness in his limbs, which, in the spring of 1739, brought on a mortification in his foot; and, unfortunately, his blood was so vitiated by the scurvy, that assistance from medicine was not to be expected. When he was informed that his death was near, he remained for a little space calm and silent; but he soon recovered his former vivacity, and conversed with his usual ease. He died on the 19th of April 1739, in the 57th year of his age, and was buried at his own request in the chancel at Boxworth.

He married the daughter of the reverend Mr Dickens, rector of Boxworth, in Cambridgeshire, and by her had a son and daughter.

Dr Saunderson was rather to be admired as a man of wonderful genius and assiduity, than to be loved for amiable qualities. He spoke his sentiments freely of characters, and praised or condemned his friends as well as his enemies without reserve. This has been ascribed by some to a love of defamation; but perhaps with more propriety it has been attributed by others to an inflexible love of truth, which urged him upon all occasions to speak the sentiments of his mind without disguise, and without considering whether this conduct would please or give offence. His sentiments were supposed unfavourable to revealed religion. It is said, that he alleged he could not know God, because he was blind, and could not see his works; and that, upon this, Dr Holmes replied, "Lay your hand upon yourself, and the organization which you will feel in your own body will dissipate so gross an error." On the other hand, we are informed, that he had desired the sacrament to be given him on the evening before his death. He was, however, seized with a delirium, which rendered this impossible.

He wrote a system of algebra, which was published, in 2 volumes 4to, at London, after his death, in the year 1740, at the expence of the University of Cambridge.

Dr Saunderson invented for his own use a Palpable Arithmetic; that is, a method of performing operations in arithmetic solely by the sense of touch. It consisted of a table raised upon a small frame, so that he could apply his hands with equal ease above and below. On this table were drawn a great number of parallel lines

which were crossed by others at right angles; the edges of the table were divided by notches half an inch distant from one another, and between each notch there were five parallels; so that every square inch was divided into a hundred little squares. At each angle of the squares where the parallels intersected one another, a hole was made quite through the table. In each hole he placed two pins, a big and a small one. It was by the various arrangements of the pins that Saunderson performed his operations. A description of this method of making calculations by his table is given under the article BLIND, n^o 38, though it is there by mistake said that it was not of his own invention.

His sense of touch was so perfect, that he could discover with the greatest exactness the slightest inequality of surface, and could distinguish in the most finished works the smallest oversight in the polish. In the cabinet of medals at Cambridge he could single out the Roman medals with the utmost correctness; he could also perceive the slightest variation in the atmosphere. One day, while some gentlemen were making observations on the sun, he took notice of every little cloud that passed over the sun which could interrupt their labours. When any object passed before his face, even though at some distance, he discovered it, and could guess its size with considerable accuracy. When he walked, he knew when he passed by a tree, a wall, or a house. He made these distinctions from the different ways his face was affected by the motion of the air.

His musical ear was remarkably acute; he could distinguish accurately to the fifth of a note. In his youth he had been a performer on the flute; and he had made such proficiency, that if he had cultivated his talents in this way, he would probably have been as eminent in music as he was in mathematics. He recognized not only his friends, but even those with whom he was slightly acquainted, by the tone of their voice; and he could judge with wonderful exactness of the size of any apartment into which he was conducted.

SAVONA, a large, handsome, populous, and strong town of Italy, in the territory of Genoa, with two castles, and a bishop's see. It contains several handsome churches and well-built structures. It was taken by the king of Sardinia in 1746, at which time it had a capacious harbour; but the people of Genoa, being afraid that it would hurt their own trade, choked it up. It is seated on the Mediterranean sea, in a well-cultivated country, abounding in silk and all kinds of good fruit. E. Long. 8. 14. N. Lat. 44. 21.

SAVONAROLA (Jerome), a famous Italian monk, was born at Ferrara in 1452, and descended of a noble family. At the age of 22 he assumed the habit of a Dominican friar, without the knowledge of his parents, and distinguished himself in that order by his piety and ability as a preacher. Florence was the theatre where he chose to appear; there he preached, confessed, and wrote. He had address enough to place himself at the head of the faction which opposed the family of the Medici. He explained the Apocalypse, and there found a prophecy which foretold the destruction of his opponents. He predicted a renovation of the church, and declaimed with much severity against the clergy and the court of Rome. Alexander VI. excommunicated him, and prohibited him from preaching. He derided the anathemas of the Pope: yet he forbore preaching

Savonarola, for some time, and then resumed his employment with more applause than before. The Pope and the Medici family then thought of attacking him with his own weapons. Savonarola having posted up a thesis as a subject of disputation, a Franciscan, by their instigation, offered to prove it heretical. The Franciscan was seconded by his brother friars, and Savonarola by his; and thus the two orders were at open war with each other. To settle the dispute, and to convince their antagonists of the superior sanctity of Savonarola, one of the Dominicans offered to walk through a fire; and in order to prove his wickedness, a Franciscan agreed to the same experiment. The multitude, eager to witness so extraordinary a spectacle, urged both parties to come to a decision; and the magistrates were constrained to give their consent. Accordingly, Saturday the 7th of April 1498 was fixed for the trial. On that day the champions appeared; but when they saw one another in cold blood, and beheld the wood in flames, they were seized with fear, and were very anxious to escape by any subterfuge the imminent danger into which they had rashly thrown themselves. The Dominican pretended he could not enter the flames without the host in his hand. This the magistrates obstinately refused to allow; and the Dominican's fortitude was not put to the test. The Franciscans incited the multitude against their opponents, who accordingly assaulted their monastery, broke open the gates which were shut against them, and entered by force. Upon this, the magistrates thought it necessary to bring Savonarola to trial as an impostor. He was put to the torture, and examined; and the answers which he gave fully evinced that he was both a cheat and a fanatic. He boasted of having frequent conversations with God, and found his brother friars credulous enough to believe him. One of the Dominicans, who had shared in his sufferings, affirmed, that he saw the Holy Ghost in the shape of a dove, with feathers of gold and silver, twice in one day alight on the shoulder of Savonarola and peck his ear; he pretended also that he had violent combats with demons. John Francis Picus earl of Mirandula, who wrote his life, assures us, that the devils which infested the convent of the Dominicans trembled at the sight of friar Jerome, and that out of vexation they always suppressed some letters of his name in pronouncing it. He expelled them from all the cells of the monastery. When he went round the convent sprinkling holy water to defend the friars from the insults of the demons, it is said the evil spirits spread thick clouds before him to prevent his passage.—At length, the pope Alexander VI. sent the chief of the Dominicans, with bishop Romolino, to degrade him from holy orders, and to deliver him up to the secular judges with his two fanatical associates. They were condemned to be hanged and burned on the 23d May 1498. Savonarola submitted to the execution of the sentence with great firmness and devotion, and without uttering a word respecting his innocence or his guilt. He was 46 years of age. Immediately after his death, his Confession was published in his name. It contained many extravagancies, but nothing to deserve so severe and infamous a punishment. His adherents did not fail to attribute to him the power of working miracles; and so strong a veneration had they for their chief, that they preserved with pious care any parts of his body which they could snatch from the flames. The earl of Mirandula,

the author of his life, has described him as an eminent saint. He gravely informs us, that his heart was found in a river; and that he had a piece of it in his possession, which had been very useful in curing diseases, and ejecting demons. He remarks, that many of his persecutors came to a miserable end. Savonarola has also been defended by Father Quetif, Bzövius, Baron, and other religious Dominicans.

He wrote a prodigious number of books in favour of religion. He has left, 1. Sermons in Italian; 2. A Treatise entitled, *Triumphus crucis*; 3. *Eruditorum Confessorum*, and several others. His works have been published at Leyden in 6 volumes 12mo.

SAVORY, in botany. See SATURRIA.

SAVOUR. See TASTE.

SAVOY, a duchy lying between France and Italy, and which takes its name from the Latin Sabaadia, altered afterwards to Saboia, and Sobojia.

This country was anciently inhabited by the Celtes, whose descendants therein were subdivided into the Allobroges, Nantuates, Veragri, Seduni, Salassi, Centrones, Garocelli, and some others of inferior note.—Of all these the Allobroges were the most considerable. The reduction of these tribes, in which Julius Cæsar had made a great progress, was completed under Augustus. Afterwards this country shared the fate of the rest of the western empire, and was over-run by the northern barbarians. The Burgundians held it a considerable time; but when or how it first became a distinct earldom under the present family, is what historians are not agreed about: thus much, however, is certain, that Amadæus I. who lived in the 12th century, was count of it. In 1416, Amadæus VIII. was created by the emperor Sigismund duke of Savoy; and Victor Amadæus first took the title of king of Sicily, and afterwards of Sardinia. See SARDINIA. Savoy was lately conquered by the French, and added to the republic as the eightieth department. As this arrangement, though decreed by the convention to last for ever, may probably be of short duration, we shall write of the duchy as of an independent state. Savoy, then, is bounded to the south by France and Piedmont; to the north by the lake of Geneva, which separates it from Switzerland; to the west, by France; and to the east, by Piedmont, the Milanese, and Switzerland; its greatest length being about eighty-eight miles, and breadth about seventy-six.

As it lies among the Alps, it is full of lofty mountains, which in general are very barren: many of the highest of them are perpetually covered with ice and snow. The summit of those called *Montagnes Maudites*, "the cursed mountains," are said to be more than two English miles in perpendicular height above the level of the lake of Geneva, and the level itself is much higher than the Mediterranean. In some few of the valleys there is corn-land and pasture, and a good breed of cattle and mules; and along the lake of Geneva, and in two or three other places, a tolerable wine is produced: Mount Senis or Cenis, between Savoy and Piedmont, over which the highway from Geneva to Turin lies, is as high, if not higher, than the *Montagnes Maudites*; but of all the mountains of the Alps, the highest is mount Rochmelon, in Piedmont, between Fertièrre and Novalesè. The roads over these mountains are very tedious, disagreeable, and dangerous, especially as huge masses of snow, called by the Italians *avalanches*,

avalanches; and fragments of rocks, frequently roll down into them from the impending precipices. The way of travelling is either in sledges, chairs, or on the backs of mules: in some places the path on the brink of the precipices is so narrow, that there is but just room for a single person to pass. It begins to snow on these mountains commonly about the beginning of October. In summer, in the months of July, August, and September, many of them yield very fine grass, with a great variety of flowers and herbs; and others box-wood, walnuts, chestnuts, and pines. The height and different combinations of these mountains, their towering summits rising above one another, and covered with snow, the many cataracts or falls of water, the noise and rapidity of the river Arc, the froth and green tincture of its water, the echoes of its numerous streams tumbling from cliff to cliff, form altogether a very romantic scene. These mountainous tracts, notwithstanding their height, are not altogether free from thunder in summer, and are also much exposed to thick clouds, which sometimes settle unexpectedly on them, and continue several days. There are some wolves among the thickets; and they abound with hares; rupicapras or chamois, and marmottes. In the lower parts of Savoy, there are also bears, wild boars, deer, and rabbits; and among the desolate mountains are found great quantities of rock-crystal. In the glaciers or ice-valleys, between the high mountains, the air is extremely cold, even in the months of July and August. The surface of these ice-valleys looks like a sea or lake, which, after being agitated by fierce and contrary winds, has been frozen all at once, interspersed with hideous cracks and chasms. The noise of these cracks, when first made by the heat of the noon-day sun, and reverberated by the surrounding rocks and mountains, is astonishing. The height of the impending mountains is such, that the sun's rays seldom reach the ice-valleys, except a few hours in the middle of summer. The avalanches or snow-balls, which the least concussion of the air will occasion, tumble down the mountains with amazing rapidity, continually increasing, and carrying all before them. People have been taken out alive, after being buried several days under them. The mountainous nature of this duchy renders the plough a useless instrument of agriculture. The peasants break up the hungry soil with the pickaxe and spade, and to improve it carry up mould and dung in baskets. For the purpose of preserving it from drought in the spring and summer, they cut small reservoirs above it, the water of which may be let out at will; and to prevent the earth from giving way, break the declivity of the mountains by building walls on the side for its support, which frequently assume the appearance of ancient fortification, and are a very pleasing deception to travellers. The Savoyards carry their better sort of cheese into Piedmont, as the flavour is much esteemed there; but they gain more by their skins of bears, chamois, and bouquetins (a species of the wild goat), or by the sale of growse and pheasants, which they carry in great numbers to Turin.

The chief rivers are the Rhone, which, on the side of Geneva, separates Savoy from France; the Arve, which has some particles of gold in its sands; the Isere, the Seran, the Siers, and the Arc. There are also a great many lakes in this country, which yield

plenty of fish, but none of them are very large, together with medicinal and reciprocating springs and hot baths.

The language of the common people is a corrupt French; but the better sort, and those that live in the great cities, speak as good French as they do in Paris itself.

In their temper, however, and disposition, the Savoyards resemble the Germans more than the French, retaining still much of the old German honesty and simplicity of manners, which no doubt is partly owing to the poverty and barrenness of the country. To this also, joined to their longevity and the fruitfulness of their women, which are the effects of their cheerful disposition, healthy air, activity, temperance, and sobriety, it is owing that great numbers of them are obliged to go abroad in quest of a livelihood, which they earn, those at least who have no trades, by showing marmottes, cleaning shoes, sweeping chimneys, and the like. It is said, that there are generally about 18,000 of them, young and old, about Paris. In summer they lie in the streets, and in winter, forty, fifty, or sixty of them lodge together in a room: they are so honest that they may be trusted to any amount. The children are often carried abroad in baskets before they are able to walk. In many villages of Savoy there is hardly a man to be seen throughout the year, excepting a month or two. Those that have families generally set out and return about the same season, when their wives commonly lie in, and they never fail to bring home some part of their small earnings. Some of them are such consummate masters of economy, that they set up shops and make fortunes, and others return home with a competency for the rest of their days. An old man is often dispatched with letters, little presents, and some money, from the younger sort, to their parents and relations, and brings back with him fresh colonies, letters, messages, and news. The cultivation of their grounds, and the reaping and gathering in of the harvest and vintage, are generally left to the women and children; but all this is to be understood of the mountainous parts of Savoy. Great numbers of the mountaineers of both sexes are said to be lame and deformed; and they are much subject to a kind of wens, which grow about their throats, and very much disfigure them, especially the women; but that is the only inconvenience they feel from them.

The nobility of Savoy, and the other dominions of the king of Sardinia, labour under great hardships and restrictions, unheard of in other countries, which we have not room here to particularize. A minute account of them will be found in Mr Keyser's Travels. In short, the king has left neither liberty, power, nor much property, to any but himself and the clergy, whose overgrown wealth he has also greatly curtailed.

No other religion is professed or tolerated in Savoy but that of the church of Rome. The decrees, however, of the council of Trent are not admitted; nor are the churches asylums for malefactors.

This duchy is divided into those of Chablais, Genevois, and Savoy Proper, the counties of Tarantaise and Maurienne, and the barony of Faucigny.

SAURIN (James), a celebrated preacher, was born at Nîmes in 1677, and was the son of a Protestant lawyer of considerable eminence. He applied to his studies with

Savoy,
Saurin.

Saurin.

with great success; but at length being captivated with a military life, he relinquished them for the profession of arms. In 1694 he made a campaign as a cadet in lord Galloway's company, and soon afterwards obtained a pair of colours in the regiment of colonel Renault which served in Piedmont. But the duke of Savoy having made peace with France, he returned to Geneva, and resumed the study of philosophy and theology under Turretin and other professors. In 1700 he visited Holland, then came to England, where he remained for several years, and married. In 1705 he returned to the Hague, where he fixed his residence, and preached with the most unbounded applause. To an exterior appearance highly prepossessing, he added a strong harmonious voice. The sublime prayer which he recited before his sermon was uttered in a manner highly affecting. Nor was the attention excited by the prayer dissipated by the sermon: all who heard it were charmed; and those who came with an intention to criticise, were carried along with the preacher and forgot their design. Saurin had, however, one fault in his delivery; he did not manage his voice with sufficient skill. He exhausted himself so much in his prayer and the beginning of his sermon, that his voice grew feeble towards the end of the service. His sermons, especially those published during his life, are distinguished for justness of thought, force of reasoning, and an eloquent unaffected style.

The first time that the celebrated Abaddie heard him preach, he exclaimed, "Is it an angel or a man who speaks?" Saurin died on the 30th of December 1730, aged 53 years.

He wrote, 1. Sermons, which were published in 12 vols. 8vo and 12mo; some of which display great genius and eloquence, and others are composed with negligence. One may observe in them the imprecations and the aversion which the Calvinists of that age were wont to utter against the Roman Catholics. Saurin was, notwithstanding, a lover of toleration: and his sentiments on this subject gave great offence to some of his fanatical brethren, who attempted to obscure his merit, and embitter his life. They found fault with him because he did not call the pope *Antichrist*, and the Romish church *the whore of Babylon*. But these prophetic metaphors, however applicable they may be, were certainly not intended by the benevolent religion of Jesus to be bandied about as terms of reproach; which would teach those to rail who use them, and irritate, without convincing, those to whom they were applied.

Saurin, therefore, while he perhaps interpreted these metaphors in the same way with his opposers, discovered more of the moderation of the Christian spirit. Five volumes of his sermons were published in his life, the rest have been added since his decease.

2. Discourses Historical, Critical, and Moral, on the most memorable Events of the Old and New Testament. This is his greatest and most valuable work. It was printed first in two volumes folio. As it was left unfinished, Beausobre and Roques undertook a continuation of it, and increased it to four volumes. It is full of learning: it is indeed a collection of the opinions of the best authors, both Christian and Heathen; of the philosophers, historians, and critics, in every subject which the author examines. 3. The State of Christianity in France, 1725, 8vo. In this book he discusses

many important points of controversy, and calls in question the truth of the miracle said to be performed on La Fosse at Paris. 4. An Abridgment of Christian Theology and Morality, in the form of a Catechism, 1722, 8vo. He afterwards published an abridgment of this work.

A Dissertation which he published on the Expediency of sometimes disguising the Truth, raised a multitude of enemies against him. In this discourse his plan was, to state the arguments of those who affirm that, in certain cases, it is lawful to disguise truth, and the answers of those who maintain the contrary. He does not determine the question, but seems, however, to incline to the first opinion. He was immediately attacked by several adversaries, and a long controversy ensued; but his doctrines and opinions were at length publicly approved of by the synods of Camper and of the Hague.

The subject of this controversy has long been agitated, and men of equally good principles have supported opposite sides. It would certainly be a dangerous maxim that falsehood can ever be lawful. There may, indeed, be particular cases, when the motives to it are of such a nature as to diminish its criminality in a high degree; but to lessen its guilt is a very different thing from justifying it by the laws of morality.

SAURIN (Joseph), a geometrician of the academy of Sciences at Paris, was born at Courtoufon in the principality of Orange, in 1659. His father, who was a minister at Grenoble, was his first preceptor. He made rapid progress in his studies, and was admitted minister of Eure in Dauphiny when very young: but having made use of some violent expressions in one of his sermons, he was obliged to quit France in 1683. He retired to Geneva, and thence to Berne, where he obtained a considerable living. He was scarcely settled in his new habitation, when some theologians raised a persecution against him. Saurin, hating controversy, and disgusted with Switzerland, where his talents were entirely concealed, repaired to Holland. He returned soon after to France, and surrendered himself into the hands of Bossuet bishop of Meaux, who obliged him to make a recantation of his errors. This event took place in 1690. His enemies, however, suspected his sincerity in the abjuration which he had made. It was a general opinion, that the desire of cultivating science in the capital of France had a greater effect in producing this change than religion. Saurin, however, speaks of the reformers with great asperity, and condemns them for going too far. "Deceived in my opinions concerning the rigid system of Calvin, I no longer regarded that reformer in any other light but as one of those extravagant geniuses who are carried beyond the bounds of truth. Such appeared to me in general the founders of the reformation; and that just idea which I have now obtained of their character has enabled me to shake off a load of prejudices. I saw in most of the articles which have separated them from us, such as the invocation of saints, the worship of images, the distinction of meats, &c. that they had much exaggerated the inevitable abuses of the people, and imputed these to the Romish church, as if sanctioned by its doctrines. Besides, that they have misrepresented those doctrines which were not connected with any abuse. One thing which surprised me much when my eyes began to open, was the false idea, though in appearance full

Saurin.

full of respect, for the word of God, which the reformers entertained of the perfection and perspicuity of the Holy Scriptures, and the manifest misinterpretation of passages which they bring to support that idea (for that misinterpretation is a point which can be proved). Two or three articles still raised some objections in my mind against the Romish church; to wit, Transubstantiation, the adoration of the sacrament, and the infallibility of the church. The adoration of the sacrament I considered as idolatry, and, on that account, removed from her communion. But soon after, the Exposition of the bishop of Meaux, a work which can never be sufficiently admired, and his Treatise concerning changes, reversed all my opinions, and rendered me an enemy to the Reformation." It is said also, that Saurin appealed his conscience by reading Poirer's *Cogitationes rationales*. This book is written with a view to vindicate the church of Rome from the charge of idolatry.

If it was the love of distinction that induced Saurin to return to the Romish church, he was not disappointed; for he there met with protection and support. He was favourably received by Louis XIV. obtained a pension from him, and was treated by the Academy of Sciences with the most flattering respect. At that time (1717), geometry formed his principal occupation. He adorned the *Journal des Savans* with many excellent treatises; and he added to the memoirs of the Academy many interesting papers. These are the only works which he has left behind him. He died at Paris on the 29th December 1737, in his 78th year, of a fever. He married a wife of the family of Croulas in Switzerland, who bore him a son, Bernard-Joseph, distinguished as a writer for the theatre.

Saurin was of a bold and impetuous spirit. He had that lofty deportment which is generally mistaken for pride. His philosophy was austere; his opinions of men were not very favourable; and he often delivered them in their presence: this created him many enemies. His memory was attacked after his decease. A letter was printed in the *Mercure Suisse*, said to be written by Saurin from Paris, in which he acknowledges that he had committed several crimes which deserved death. Some Calvinist ministers published in 1757 two or three pamphlets to prove the authenticity of that letter; but Voltaire made diligent enquiry not only at the place where Saurin had been discharging the sacerdotal office, but at the Deans of the clergy of that department. They all exclaimed against an imputation so opprobrious. It must not, however, be concealed, that Voltaire, in the defence which he has published in his general history of Saurin's conduct, leaves some unfavourable impressions upon the reader's mind. He insinuates, that Saurin sacrificed his religion to his interest; that he played upon Bossuet, who believed he had converted a clergyman, when he had only given a little fortune to a philosopher.

SAURURUS, in botany: A genus of the tetragynia order, belonging to the heptandria class of plants; and in the natural method ranking under the second order, *Piperitæ*. The calyx is a catkin, with unisporous scales: there is no corolla; there are four germina, and four monospermous berries.

SAUVAGESIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking with those

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of which the order is doubtful. The corolla is pentapetalous and fringed; the calyx pentaphyllous; the nectarium the same, having its leaves placed alternately with the petals; the capsule unilocular.

SAUVEUR (Joseph), an eminent French mathematician, born at La Fleche in 1653. He was absolutely dumb until he was seven years of age; and even then his organs of speech did not disengage themselves so freely, but that he was ever after obliged to speak with great deliberation. Mathematics were the only studies he had any relish for, and these he cultivated with extraordinary success; so that he commenced teacher at 20 years of age, and was so soon in vogue, that he had prince Eugene for his scholar. He was made mathematical professor in the royal college in 1686; and ten years after was admitted a member of the Academy of Sciences. He died in 1716; and his writings, which consist rather of detached papers than of connected treatises, are all inserted in the Memoirs of the Academy of Sciences. He was twice married; and by the last wife had a son, who, like himself, was dumb for the first seven years of his life.

SAW, an instrument which serves to cut into pieces several solid matters; as wood, stone, ivory, &c.

The best saws are of tempered steel ground bright and smooth: those of iron are only hammer-hardened: hence the first, besides their being stiffer, are likewise found smoother than the last. They are known to be well hammered by the stiff bending of the blade; and to be well and evenly ground, by their bending equally in a bow.

Saw-fish. See **PRISTIS**.

SAXE (Maurice count of), was born the 13th October 1696. He was the natural son of Frederic Augustus II. elector of Saxony, and king of Poland, and of the countess of Konigsmarc, a Swedish lady, celebrated both for her wit and beauty. He was educated along with Frederic Augustus the electoral prince, afterwards king of Poland. His infancy announced the future warrior. Nothing could prevail on him to apply to his studies but the promise of being allowed, after he had finished his task, to mount on horseback, or exercise himself with arms.

He served his first campaign in the army commanded by prince Eugene and the duke of Marlborough, when only twelve years old. He signalized himself at the sieges of Tournay and Mons, and particularly at the battle of Malplaquet. In the evening of that memorable day, he was heard to say, "I'm content with my day's work." During the campaign of 1710, prince Eugene and the duke of Marlborough made many public encomiums on his merit. Next year the young count accompanied the king of Poland to the siege of Stralsund, the strongest place in Pomerania, and displayed the greatest intrepidity. He swam across the river in sight of the enemy, with a pistol in his hand. His valour shone no less conspicuously on the bloody day of Gaedelbusck, where he commanded a regiment of cavalry. He had a horse killed under him, after he had three times rallied his regiment, and led them on to the charge.

Soon after that campaign, his mother prevailed on him to marry the countess of Lubin, a lady both rich and beautiful. This union lasted but a short time. In 1721, the count procured a dissolution of the marriage;

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a step of which he afterwards repented. The countess left him with regret; but this did not prevent her from marrying soon after. The count of Saxe was too fond of pleasure and variety to submit to the duties which marriage imposes. In the midst, however, of the pleasures in which he sometimes indulged, he never lost sight of his profession. He carried along with him wherever he went a library of military books; and even when he seemed most taken up with his pleasures, he never failed to spend an hour or two in private study.

In 1717 he went to Hungary, where the emperor had an army of 15,000 men under the command of prince Eugene. Young count Saxe was present at the siege of Belgrade, and at a battle which the prince gained over the Turks. On his return to Poland in 1718, he was made a knight of the golden eagle.

The wars in Europe being concluded by the treaties of Utrecht and Passarowitz, count Saxe went to France. He had always professed a partiality for that country. French, indeed, was the only foreign language which during his infancy he was willing to learn. He spent his whole time during the peace in studying mathematics, fortification, and mechanics, sciences which exactly suited his genius. The mode of exercising troops had struck his attention when very young. At 16 he invented a new exercise, which was taught in Saxony with the greatest success. Having obtained a regiment in France in 1722, he formed it himself according to his new plan. From that moment the *Chevalier Follor*, an excellent judge of military talents, predicted that he would be a great man.

In 1726 the States of Courland chose him for their sovereign. But both Poland and Russia rose in arms to oppose him. The Czarina wished to bestow the duchy on Menzikoff, a happy adventurer, who from a pastry-cook's boy became a general and a prince. Menzikoff sent 800 Russians to Milan, where they besieged the new-chosen duke in his palace. Count Saxe, who had only 60 men, defended himself with astonishing intrepidity. The siege was raised, and the Russians obliged to retreat. Soon after he retired to Usmaiz, and prepared to defend his people against the two hostile nations. Here he remained with only 300 men, till the Russian general approached at the head of 4000 to force his retreat. That general invited the count to a conference, during which he intended to surprise him, and take him prisoner. The count, informed of the plot, reproached him for his baseness, and broke up the conference. About this time he wrote to France for men and money. Mademoiselle le Couvreur, a famous actress, pawned her jewels and plate, and sent him the sum of 40,000 livres. This actress had formed his mind for the fine arts. She had made him read the greater part of the French poets, and given him a taste for the theatre, which he retained even in the camp. The count, unable to defend himself against Russia and Poland, was obliged in the year 1729 to leave his new dominions, and retire into France. It is said that Anne Iwanowa, duchess dowager of Courland, and second daughter of the czar Iwan Alexiowitz, had given him hopes of marriage, and abandoned him at that time because she despaired of fixing his wavering passion.—This inconstancy lost him not only Courland, but the throne of Russia itself, which that Princess afterwards filled.

Count Saxe, thus stripped of his territories, devoted himself for some time to the study of mathematics. He composed also, in 13 nights, and during the intervals of an ague, his *Reveries*, which he corrected afterwards. This book is written in an incorrect but forcible style; it is full of remarks both new and profound, and is equally useful to the soldier and the general.

The death of the king of Poland his father, in 1733, kindled a new war in Europe. His brother, the elector of Saxony, offered him the command of all his forces, but he preferred the French service, and repaired to the marshal of Berwick's army, which was encamped on the Rhine. "Count," said that general, who was preparing to attack the enemy's entrenchments at Etlinghen, "I was going to send for 3000 men, but your arrival is of more value than theirs." When the attack began, the count, at the head of a regiment of grenadiers, forced the enemy's lines, and by his bravery decided the victory. He behaved at the siege of Philipburgh with no less intrepidity. For these services he was, in 1734, rewarded with the rank of lieutenant-general. Peace was concluded in 1736; but the death of Charles VI. emperor of Germany kindled a new war almost immediately.

Prague was besieged by the count of Saxe in 1741, near the end of November, and taken the same month by assault. The conquest of Egra followed that of Prague. It was taken a few days after the trenches were opened. This success gave so much joy to the Emperor Charles VII. that he wrote a congratulatory letter to the conqueror with his own hands.

In 1744 he was made marshal of France, and commanded a part of the French army in Flanders. During that campaign he displayed the greatest military conduct. Though the enemy was superior in number, he observed their motions so skilfully that they could do nothing.

In January 1745, an alliance was concluded at Warsovia between the queen of Hungary, the king of England, and the States of Holland. The ambassador of the States General, meeting marshal Saxe one day at Versailles, asked his opinion of that treaty. "I think (says he), that if the king my master would give me an unlimited commission, I would read the original at the Hague before the end of the year." This answer was not a bravado; the marshal was capable of performing it.

He went soon after, though exceedingly ill, to take the command of the French army in the Low Countries. A gentleman seeing the feeble condition in which he left Paris, asked him how he could in that situation undertake so great an enterprise? "The question (replied he) is not about living, but setting out."—Soon after the opening of the campaign, the battle of Fontenoy was fought. Marshal Saxe was at the point of death, yet he caused himself to be put into a litter, and carried round all the posts. During the action he mounted on horseback, though he was so very weak that his attendants dreaded every moment to see him expire. The victory of Fontenoy, owing entirely to his vigilance and capacity, was followed by the reduction of Tournay, Bruges, Ghent, Oudenarde, Ostend, Ath, and Brussels: This last city was taken on the 28th February 1746; and very soon after the King sent to the marshal a letter of naturalization conceived in the most

flattering

flattering terms. The succeeding campaigns gained him additional honours. After the victory of Raucoux, which he gained on the 11th October 1746, the king of France made him a present of six pieces of cannon. He was, on the 12th of January of the following year, created marechal of all the French armies, and, in 1748, commander-general of all those parts of the Netherlands which were lately conquered.

Holland now began to tremble for her safety. Maastricht and Bergen-op-Zoom had already fallen, and nothing but misfortunes seemed to attend the further prosecution of the war. The States General, therefore, offered terms of peace, which were accepted, and a treaty concluded on the 18th October 1748.

Marechal Saxe retired to Chambord, a country seat which the king of France had given him. Some time after he went to Berlin, where the king of Prussia received him as Alexander would have received Cæsar.—On his return to France, he spent his time among men of learning, artists, and philosophers. He died of a fever, on the 30th November 1750, at the age of 54.

Some days before his death, talking to M. Senac his physician about his life, "It has been (says he) an excellent dream." He was remarkably careful of the lives of his men. One day a general officer was pointing out to him a post which would have been of great use. "It will only cost you (says he) a dozen grenadiers." "That would do very well," replied the marechal, "were it only a dozen lieutenant-generals."

It was impossible for marechal Saxe, the natural brother of the king of Poland, elected sovereign of Courland, and possessed of a vigorous and restless imagination, to be destitute of ambition. He constantly entertained the notion that he would be a king. After losing the crown of Russia by his inconstancy in love, he formed, it is said, the project of assembling the Jews, and of being the sovereign of a nation which for 1700 years had neither possessed chief nor country. When this chimerical idea could not be realized, he cast his eyes upon the kingdom of Corsica. After failing in this project also, he was busily employed in planning a settlement in some part of America, particularly Brazil, when death surprised him.

He had been educated and died in the Lutheran religion. "It is a pity (said the queen of France, when she heard of his death) that we cannot say a single *De profundis* (prayer for the dead) for a man who has made us sing so many *Te Deums*." All France lamented his death.

By his will, which is dated at Paris, March 1. 1748, he directed that his body should be buried in quicklime: "that nothing (says he) may remain of me in this world but the remembrance of me among my friends." These orders, however, were not complied with; for his body was embalmed, put into a leaden coffin, which was inclosed in another of copper, and this covered with one of wood, bound about with iron. His heart was put into a silver gilt box, and his entrails into another coffin. Louis XV. was at the charge of his funeral. By his order his corpse was interred with great pomp and splendor in the Lutheran church of St Thomas, at Strasburgh, on the 8th February 1751.

The marechal was a man of ordinary stature, of a robust constitution, and extraordinary strength. To

an aspect, noble, warlike, and mild, he joined the excellent qualities of the heart. Affable in his manners, and disposed to sympathize with the unfortunate, his generosity sometimes carried him beyond the limits of his fortune. On his death-bed he reviewed the errors of his life with remorse, and expressed much penitence.

The best edition of his *Reveries* was printed at Paris 1757, in 2 vols 4to. It was compared with the greatest attention with the original manuscript in the king's library. It is accompanied with many designs exactly engraved, and a *Life of the Author*. The *Life of marechal Saxe* was written by M. d'Espagnac, 2 vols. 12mo. This history is written in the panegyrical style. The author is, however, impartial enough to remark, that in the three battles upon which the reputation of marechal Saxe is founded, he engaged in the most favourable circumstances, "Never did a general (says he) stand in a more advantageous situation. Honoured with the confidence of the king, he was not restrained in any of his projects. He always commanded a numerous army: his soldiers were steady, and his officers possessed great merit."

SAXIFRAGA, SAXIFRAGE, in botany: A genus of the digynia order, belonging to the decandria class of plants; and in the natural method ranking under the 13th order, *Succulenta*. The calyx is quinquepartite; the corolla pentapetalous; the capsule birostrated, unilocular, and polyspermous.

There are 38 species; of which the most remarkable are, 1. The *granulata*, or white saxifrage, which grows naturally in the meadows in many parts of England. The roots of this plant are like grains of corn, of a reddish colour without; from which arise kidney-shaped hairy leaves, standing upon pretty long footstalks.—The stalks are thick, a foot high, hairy, and furrowed: these branch out from the bottom, and have a few small leaves like those below, which fit close to the stalk: the flowers terminate the stalk, growing in small clusters; they have five white petals, inclosing ten stamina and the two styles. There is a variety of this with double flowers, which is very ornamental. 2. The *pyramidata*, with a pyramidal stalk, grows naturally on the mountains of Italy. The leaves are tongue-shaped, gathered into heads, rounded at their points, and have cartilaginous and sawed borders. The stalk rises two feet and a half high, branching out near the ground, forming a natural pyramid to the top. The flowers have five white wedge-shaped petals, and ten stamina, placed circularly the length of the tube, terminated by roundish purple summits. When these plants are strong, they produce very large pyramids of flowers, which make a fine appearance. 3. The *punctata*, commonly called *London pride*, or *none-so-pretty*, grows naturally on the Alps, and also in great plenty on a mountain of Ireland called *Mangerton*, in the county of Kerry in that island. The roots of this are perennial; the leaves are oblong, oval, and placed circularly at bottom. They have broad, flat, furrowed foot-stalks, and are deeply crenated at their edges, which are white. The stalk rises a foot high, is of a purple colour, stiff, slender, and hairy. It sends out from the side on the upper part several short foot-stalks, which are terminated by white flowers spotted with red. 4. The *oppositifolia*, grows naturally

Saxo,
Saxony

ly on the Alps, Pyrenees, and Helvetian mountains: it is also found pretty plentifully growing upon Ingleborough hill in Yorkshire, Snowdon in Wales, and some other places. It is a perennial plant, with stalks trailing upon the ground, and are seldom more than two inches long, garnished with small oval leaves standing opposite, which lie over one another like the scales of fish: they are of a brown green colour, and have a resemblance of heath. The flowers are produced at the end of the branches, of a deep blue; and thus make a pretty appearance during their continuance, which is great part of March and the beginning of April. All these species are easily propagated by offsets, or by parting their roots.

Coxe's Travels into
Denmark.

SAXO-GRAMMATICUS, descended from an illustrious Danish (A) family, was born about the middle of the 12th century. Stephens, in his edition of Saxo-Grammaticus, printed at Sorø, indubitably proves, that he must have been alive in 1156, but cannot ascertain the exact place and time of his birth. See Stephens's *Prolegomena* to the Notes on Saxo-Grammaticus, p. 8, to 24; also Holberg, vol. i. p. 269.; and Mallet's North. Antiq. vol. i. p. 4. On account of his uncommon learning, Saxo was distinguished by the name of *Grammaticus*. He was provost of the cathedral church of Roskild, and warmly patronized by the learned and warlike Absalon, the celebrated archbishop of Lunden, at whose instigation he wrote the History of Denmark. His epitaph, a dry panegyric in bad Latin verses, gives no account of the era of his death, which happened, according to Stephens, in 1204. His history, consisting of 16 books, begins from the earliest account of the Danish annals, and concludes with the year 1186. According to the opinion of an accurate writer, the first part, which relates to the origin of the Danes, and the reigns of the ancient kings, is full of fables; but the eight last books, and particularly those which regard the events of his own times, deserve the utmost credit. He wrote in Latin; the style, if we consider the barbarous age in which he flourished, is in general extremely elegant, but rather too poetical for history. Mallet, in his *Histoire de Dannemarck*, vol. i. p. 182, says, "that Sperling, a writer of great erudition, has proved, in contradiction to the assertions of Stephens and others, that Saxo-Grammaticus was secretary to Absalon; and that the Saxo provost of Roskild was another person, and lived earlier."

Holberg.

SAXONY, the name of two circles of the German empire, an electorate, and a duchy of the same. The lower circle is bounded to the south by the circle of Upper Saxony, and a part of that of the Upper Rhine; to the north, by the duchy of Sleswick, belonging to the king of Denmark, and the Baltic; to the west, by the circle of Westphalia and the north sea; and to the east by the circle of Upper Saxony. The states belonging to it are the dukes and princes of Magdeburg and Bremen, Zell, Grubenhagen, Calenberg, Wolfenbüttele, Halberstadt, Mecklenburg-Schwerin, Mecklenburg-Güstrow, Holstein-Gluckstadt, Holstein-Gottorf,

Hildesheim, Saxe-Lawenburg; the archbishopric of Lubeck; the principalities of Schwerin, Ratzeburg, Blankenburg, Ranzau; the imperial cities of Lubeck, Gotzlar, Muhlhausen, Nordhausen, Hamburg, and Bremen. The dukes of Bremen and Magdeburg are alternately directors and summoning princes; but, ever since the year 1682, the diets which used generally to be held at Brunswick or Lunenburg have been discontinued. Towards the army of the empire, which, by a decree of the empire in 1681, was settled at 40,000 men, this circle was to furnish 1322 horsemen and 2707 foot; and of the 300,000 florins granted to the imperial chest in 1707, its quota was 31,271 florins; both which assessments are the same with those of Upper Saxony, Burgundy, Swabia, and Westphalia. This circle at present nominates only two assessors in the chamber-judicatory of the empire, of one of which the elector of Brunswick-Lunenburg has the nomination, who must be a Lutheran, and is the ninth in rank. The inhabitants of this circle are almost all Lutherans.

The circle of Upper Saxony is bounded by that of Franconia, the Upper Rhine, and Lower Saxony; and also by the Baltic sea, Prussia, Poland, Silesia, Lusatia, and Bohemia. It is of great extent, and contains the following states, viz. the electors of Saxony and Brandenburg, Saxe-Weimar, Saxe-Eisenach, Saxe-Cobourg, Saxe-Gotha, Saxe-Altenburg, Saxe-Querfurt, the Hither and Farther Pomerania, Camin, Anhalt, Quidlenburg, Gernrode, Walkenried, Schwarzburg, Sonderhausen, Schwarzburg-Rudolstadt, Mansfeld, Stolberg, Barby, the counts of Reussen, and the counts of Schonberg. No diets have been held in this circle since the year 1683. The elector of Saxony has always been the sole summoning prince and director of it. Most of the inhabitants profess the Protestant religion. When the whole empire furnishes 40,000 men, the quota of this circle is 1322 horse and 2707 foot. Of the 300,000 florins granted by the empire in 1707; it contributed only 31,271 florins, 28 kruitzers, being rated no higher than those of Westphalia, Lower Saxony, Swabia, and Burgundy, though it is much larger. Agreeable to a resolution and regulation in 1654, this circle nominates now only two assessors of the chamber-court.

The electorate consists of the duchy of Saxony, the greatest part of the margravate of Meissen, a part of the Vogtland, and the northern half of the landgravate of Thuringia. The Lusatias also, and a part of the country of Henneberg, belong to it, but are no part of this circle. The soil of the electoral dominions lying in this circle is in general exceeding rich and fruitful, yielding corn, fruits, and pulse in abundance, together with hops, flax, hemp, tobacco, aniseed, wild saffron, wood; and in some places woad, wine, coals, porcelain clay, terra figillata, fullers-earth, fine shiver, various sorts of beautiful marble, serpentine stone, and almost all the different species of precious stones. Sulphur also, alum, vitriol, sand, and free stone, salt-springs, amber, turf, cinnabar, quicksilver, antimony, bismuth, arsenic, cobalt, and other minerals, are found in it. This country,

(A) Some authors have erroneously conjectured, from his name Saxo, that he was born in Saxony; but Saxe was no uncommon appellation among the ancient Danes. See Olaus Wormius *Monumenta Danica*, p. 186, and Stephens's *Prolegomena*, p. 10.

Saxony. country, besides the above articles, contains likewise valuable mines of silver, copper, tin, lead, and iron; and abounds in many places with horned cattle, sheep, horses, and venison. The principal rivers by which it is watered are the Elbe, the Scherze-Elster, the Mulde, the Saale, the Unstrut, the Weisse-Elster, and the Pleisse. These rivers, as well as the lakes and rivulets, abound in fish; and in the White-Elster are found beautiful pearls. This electorate is extremely well cultivated and inhabited, and is said to include about 250 great and small towns, upwards of 5000 villages, 196 royal manors, and near as many royal castles, besides private estates, and commanderies. The provincial diets here consist of three classes. The first is composed of the prelates, the counts, and lords, and the two universities of Leipzig and Wittenberg. To the second belong the nobility in general, immediate or mediate, that is, such as stand immediately under the fief-chancery or the aulic judicatories, and such as are immediately under the jurisdiction of the amtmann. The third class is formed of the towns in general. The general provincial diets are ordinarily held every six years; but there are others, called *selection diets*, which are convened commonly every two years. We would here observe, that not only these diets, but those in most of the other states of Germany, are at present extremely insignificant and unimportant, retaining little more than the shadow of their former power and privileges; for even the petty princes, though they depend upon their more potent neighbours, and must be careful not to give them any umbrage, are almost as absolute in their respective territories as the grand seignior himself. As to religion, it was in this country that the reformation took its rise in the 16th century, to which it hath ever since adhered, according to the doctrines of Luther*. The two late electors, when they embraced Popery in order to qualify themselves to be elected kings of Poland, gave the most solemn assurances to their people, that they would inviolably maintain the established religion and its professors in the full and free enjoyment of all their ecclesiastical rights, privileges, and prerogatives whatsoever, in regard to churches, worship, ceremonies, usages, universities, schools, benefices, incomes, profits, jurisdictions, and immunities. The electoral families still continue Roman Catholics, though they have lost the crown of Poland, for which they at first embraced Popery. With respect to ecclesiastical matters, the country is divided into parishes, and these again into spiritual inspections and consistories, all subordinate to the ecclesiastical council and upper consistory of Dresden, in which city and Leipzig the Calvinists and Roman Catholics enjoy the free exercise of their religion. Learning flourishes in this electorate; in which, besides the free-schools and gymnasia in most of the chief towns, are the two celebrated universities of Wittenberg and Leipzig, in the last of which are also societies for the liberal arts and the German language, with booksellers and printers of the greatest eminence. A great variety of manufactures are also carried on in this country. The principal are those of fine and coarse linen, thread, fine lace, paper, fine glasses and mirrors; porcelain, equal if not superior to that of China†; iron, brass, and steel wares; manufactures of gold and silver, cotton, wool, and silk; gloves, caps, hats, and tapestry; in which, and the natural productions mentioned above, together with dye-

ing, an important foreign commerce is carried on. A great addition has been made since the year 1718 to the electoral territories, by the extinction of the collateral branches of Zeitz, Merseburg, and Weissenfels, whose dominions devolved to the elder electoral branch, descended from the margraves of Meissen. The first of these, who was elector of Saxony, was Frederick the Warlike, about the beginning of the 15th century.

This elector styles himself duke of Saxony, Juliers, Cleve, and Berg, as also of Engern and Westphalia, arch-marshal and elector of the Holy Roman empire, landgrave in Thuringia, margrave of Meissen, and of Upper and Lower Lusatia, burgrave of Magdeburg, princely count of Henneberg, count of La Mark, Ravensberg, Barby, and Hanau, and lord of Ravensstein. Among the electors he is reckoned the sixth, as great-marshal of the empire, of which he is also vicar, during an interregnum, in all places not subject to the vicariate of the count palatine of the Rhine. He is moreover sole director of the circle; and in the vacancy of the see of Mentz claims the directorium at the diet of the empire. His matricular assessment, on account of the electorate, is 1984 florins; besides what he pays for other districts and territories. To the chamber-courts he contributes, each term, the sum of 1545 rix-dollars, together with 83 rix-dollars and 62 kruitzers on account of the county of Mansfeld. In this electorate, subordinate to the privy council, are various colleges for the departments of war, foreign affairs, the finances, fiefs, mines, police, and ecclesiastical affairs, together with high tribunals and courts of justice, to which appeals lie from the inferior. The revenues of this elector are as considerable as those of any prince in the empire, if we except those of the house of Austria. They arise from the ordinary and extraordinary subsidies of the states; his own demesnes, consisting of 72 bailiwicks; the impost on beer, and the fine porcelain of the country; tenths of corn, fruit, wine, &c. his own silver mines, and the tenths of those that belong to particulars: all which, added together, bring in an yearly revenue of betwixt 700,000 l. and 800,000 l. yet the electorate is at present deeply in debt. The regular troops commonly amount to 20,000 men, exclusive of the militia of the ban, the arriere-ban, and the body of miners and hunters, who are obliged in time of war to bear arms. The whole electorate is divided into circles.

The electoral circle, or the duchy of Saxony, is bounded by the circles of Meissen, Leipzig, and Thuringia, the principality of Anhalt, the marche of Brandenburg, and Lusatia. The principality of Anhalt lies across it, and divides it into two parts. Its greatest length and breadth is computed at about 40 miles; but though it is watered by the Elbe, the Black Elster, and the Mulde, it is not very fruitful, the soil for the most part consisting of sand. It contains 24 towns, three boroughs, betwixt 400 and 500 villages, 164 noblemen's estates, 11 superintendencies, three inspections, under one consistory, and 11 prefectures or districts. The present duchy of Saxony is not to be confounded with the old; for the latter was of a much greater extent, and contained in it those large tracts anciently called *Eastphalia*, *Engern*, and *Westphalia*, of which the electoral circle was no part, but was taken by Albert the Bear, margrave of Salzwedel, from the Venetians.

* See Reformation, p. 8.

† See Porcelain, p. 23, 24.

Saxony. fon Bernard obtaining the dignity of duke of Saxony from the emperor Frederic I. the name of *duchy* was given to this country; and the electoral dignity having been afterwards annexed to the duchy, it acquired thereby also the name of the *electoral circle*.

The country of Saxony is remarkable for being the mother of the present English nation; but concerning the Saxons themselves, previous to that period, we have very few particulars. The Saxons (says Mr Whitaker) have been derived by our historians from very different parts of the globe; India, the north of Asia, and the forests of Germany. And their appellation has been equally referred to very different causes; the name of their Indian progenitor, the plundering disposition of their Asiatic fathers, and the short hooked weapons of their warriors. But the real origin of the Saxons, and the genuine derivation of their name, seem clearly to be these.

In the earlier period of the Gallic history, the Celtæ of Gaul crossed the Rhine in considerable numbers, and planted various colonies in the regions beyond it. Thus the Volcæ Tectosages settled on one side of the Hercynian forest and about the banks of the Neckar, the Helvetii upon another and about the Rhine and Maine, the Boii beyond both, and the Senones in the heart of Germany. Thus also we see the Treviri, the Nervii, the Suevi, and the Marcomanni, the Quadi, the Venedi, and others, in that country; all plainly betrayed to be Gallic nations by the Gallic appellations which they bear, and all together possessing the greatest part of it. And, even as late as the conclusion of the first century, we find one nation on the eastern side of this great continent actually speaking the language of Gaul, and another upon the northern using a dialect nearly related to the British. But as all the various tribes of the Germans are considered by Strabo to be *γεννητοὶ Γαλαῖται*, or genuine Gauls in their origin; so those particularly that lived immediately beyond the Rhine, and are asserted by Tacitus to be indubitably native Germans, are expressly denominated *Γαλαῖται*, or Gauls, by Diodorus, and as expressly declared by Dio to have been distinguished by the equivalent appellation of *Celtæ* from the earliest period. And the broad line of nations, which extended along the ocean, and reached to the borders of Scythia, was all known to the learned in the days of Diodorus, by the same significant appellation of *Γαλαῖται*, or Gauls.

Of these, the most noted were the Si-Cambri and Cimbri; the former being seated near the channel of the Rhine, and the latter inhabiting the peninsula of Jutland. And the denominations of both declare their original; and show them to have been derived from the common stock of the Celtæ, and to be of the same Celtic kindred with the Cimbri of our own Somersetshire, and the Cymbri or Cambrians of our own Wales. The Cimbri are accordingly denominated *Celtæ* by Strabo and Appian. And they are equally asserted to be Gauls by Diodorus; to be the descendants of that nation which sacked the city of Rome, plundered the temple of Delphi, and subdued a great part of Europe and some of Asia.

Immediately to the south of these were the Saxons, extending from the isthmus of the Chersonesus to the current of the Elbe. And they were equally Cel-

tic in their origin as their neighbours. They were denominated *Ambrones* as well as Saxons; and, as such, are included by Tacitus under the general appellation of *Cimbri*, and comprehended in Plutarch under the equal one of *Celto-Scythæ*. And the name of *Ambrones* appears particularly to have been Gallic; being common to the Saxons beyond the Elbe, and the Ligurians in Cisalpine Gaul; as both found to their surprise, on the irruption of the former into Italy with the Cimbri. And, what is equally surprising, and has been equally unnoticed by the critics, the Welsh distinguish England by the name of *Loegr* or *Liguria*, even to the present moment. In that irruption these Saxons, Ambrons, or Ligurians, composed a body of more than 30,000 men, and were principally concerned in cutting to pieces the large armies of Manlius and Cæpio. Nor is the appellation of *Saxons* less Celtic than the other. It was originally the same with the Belgic Sueffones of Gaul; the capital of that tribe being now intitled *Soissons* by the French, and the name of the Saxons pronounced *Saisfen* by the Welsh, *Safon* by the Scotch, and *Safenach* or *Saxfenach* by the Irish. And the Sueffones or Saxones of Gaul derived their own appellation from the position of their metropolis on a river, the stream at Soissons being now denominated the *Aisne*, and formerly the *Axon*; Ueff-on or Axon importing only waters or a river, and S-ueff-on or S-ax-on the waters or the river. The Sueffones, therefore, are actually denominated the *Ueffones* by Ptolemy; and the Saxones are actually intitled the *Axones* by Lucan.

These, with their brethren and allies the Cimbri, having been more formidable enemies to the Romans by land, than the Samnites, Carthaginians, Spaniards, Gauls, or Parthians, in the second century applied themselves to navigation, and became nearly as terrible by sea. They soon made themselves known to the inhabitants of the British isles by their piracies in the northern channels, and were denominated by them *Lochlyn* or *Lochlynach*; *lud-lyn* signifying the people of the wave, and the *D* being quiescent in the pronunciation. They took possession of the Orkney islands, which were then merely large shoals of sand, uncovered with woods, and overgrown with rushes; and they landed in the north of Ireland, and ravaged the country. Before the middle of the third century they made a second descent upon the latter, disembarked a considerable body of men, and designed the absolute subjection of the island. Before the conclusion of it, they carried their naval operations to the south, infested the British channel with their little vessels, and made frequent descents upon the coasts. And in the fourth and fifth centuries, acting in conjunction with the Picts of Caledonia and the Scots of Ireland, they ravaged all the eastern and south-eastern shores of Britain, began the formal conquest of the country, and finally settled their victorious soldiery in Lancashire.

SAY, or SAYE, in commerce, a kind of serge much used abroad for linings, and by the religious for shirts; with us it is used for aprons by several sorts of artificers, being usually dyed green.

SCAB. See ITCH and MEDICINE.

SCAB in Sheep. See SHEEP.

SCABIOSA, SCABIOUS, in botany: A genus of the monogynia order, belonging to the tetrandria class

Saxony
Scabiosa.

brita
||
Scalado.

of plants; and in the natural method ranking under the 48th order, *Aggregate*. The common calyx is polyphyllous; the proper one is double superior; the receptacle is paleaceous or naked. The most remarkable species are, 1. The *arvensis*, or meadow-scabious, grows naturally in many places of Britain. It hath a strong, thick, fibrous root, sending out many branching stalks, which rise to the height of three feet; the lower leaves are sometimes almost entire, and at others they are cut into many segments almost to the midrib. The flowers are produced upon naked footstalks at the end of the branches; they are of a purple colour, and have a faint odour. 2. The *fuccisa*, or devil's bit, grows naturally in woods and moist places. This has a short tap-root, the end of which appears as if it was bitten or cut off, whence the plant has taken its name. The leaves are oval and spear-shaped, and smooth; the stalks are single, about two feet high, garnished with two leaves at each joint; they generally send out two short foot-stalks from their upper joint, standing opposite, which are terminated by purple flowers.—Both these have been recommended as aperient, sudorific, and expectorant; but the present practice has no dependence on them.

SCABRITA, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants. The corolla is monopetalous, and salver-shaped; there are two seeds emarginated superior; the calyx is truncated.

SCÆVOLA (C. Mucius), a young Roman of illustrious birth, is particularly celebrated in the Roman history for a brave but unsuccessful attempt upon the life of Porfena king of Hetruria, about the year before Christ 504. See the article **ROME**, n^o 71.

SCÆVOLA, in botany; a genus of the monogynia order, belonging to the pentandria class of plants. The corolla is monopetalous; the tube slit longitudinally; the border quinquefid and lateral. The fruit is a plum inferior and monospermous; the nucleus bilocular.

SCAFFOLD, among builders, an assemblage of planks and boards, sustained by treffels and pieces of wood fixed in the wall; whereon masons, bricklayers, &c. stand to work, in building high walls, and plasterers in plastering ceilings, &c.

SCAFFOLD, also denotes a timber-work raised in the manner of an amphitheatre, for the more commodious viewing any show or ceremony: it is also used for a little stage raised in some public place, whereon to behead criminals.

SCALA-NOVA (anciently Neapolis), called by the Turks *Kou/badase*, is situated in a bay, on the slope of a hill, the houses rising one above another, intermixed with minarees and tall slender cypresses. "A street, through which we rode (says Dr Chandler †), was hung with goat-skins exposed to dry, of a most lively red. At one of the fountains is an ancient coffin used as a cistern. The port was filled with small craft. Before it is an old fortress on a rock or islet frequented by gulls and sea-mews. By the water-side is a large and good khan, at which we passed a night on our return. This place belonged once to the Ephesians, who exchanged it with the Samians for a town in Caria."

SCALADO, or **SCALLADE**, in the art of war, a furious assault made on the wall or rampart of a city, or other fortified place, by means of ladders, without carrying on works in form, to secure the men.

SCALD-CREAM, sometimes also called *Clouted-cream*: a curious method of preparing cream for butter, almost peculiar to Devonshire. Dr Hales, in Philosophical Transactions, volume 49, page 342, 1755, part 1st, gives some account of the method of preparing this delicate and luxurious article: other writers also speak of it. With an elucidation or two, we shall nearly quote Mr Feltham's account from the Gentleman's Magazine, volume 61. part 2. It is there observed, that the purpose of making scald-cream is far superior butter than can be procured from the usual raw cream, being preferable for flavour and keeping; to which those accustomed are so partial, as seldom to eat any other. As leaden cisterns would not answer for scalding cream, the dairies mostly adopt brass pans, which hold from three to five gallons for the milk; and that which is put into those pans one morning, stands till the next, when, without disturbing it, it is set over (on a trivet) a steady brisk wood fire, devoid of smoke, where it is to remain from seven to fifteen minutes, according to the size of the pan, or the quantity in it: the precise time of removing it from the fire must be particularly attended to, and is, when the surface begins to wrinkle or to gather in a little, showing signs of being near the agitation of boiling, which it must by no means do; it is then instantly to be taken off, and placed in the dairy until the next morning, when the fine cream is thrown up, and may be taken for the table, or for butter, into which it is now soon converted by stirring it with the hand. Some know when to remove it from the fire by founding the pan with the finger, it being then less sonorous; but this is only acquired by experience. Dr Hales observes, that this method of preparing milk will take off the ill taste it sometimes acquires from the cows feeding on turnips, cabbage, &c.

SCALDS, in the history of literature, a name given by the ancient inhabitants of the northern countries to their poets; in whose writings their history is recorded.

SCALE, a mathematical instrument consisting of several lines drawn on wood, brass, silver, &c. and variously divided, according to the purposes it is intended to serve; whence it acquires various denominations, as the *plain scale*, *diagonal scale*, *plotting scale*, &c. See **GEOMETRY**.

SCALE, in music, sometimes denominated a *gamut*, a *diagram*, a *series*, an *order*, a *diapason*. It consists of the regular gradations of sound, by which a composer or performer, whether in rising or descending, may pass from any given tune to another. These gradations are seven. When this order is repeated, the first note of the second is contemporaneous with the lowest note of the first; the second of the former with the second of the latter; and so through the whole octave. The second order, therefore, is justly esteemed only a repetition of the first. For this reason the scale, among the moderns, is sometimes limited to an octave; at other times extended to the compass of any particular voice or instrument. It likewise frequently includes all the practical gradations of musical sound, or the whole number of octaves employed in composition or execution, arranged in their natural order.

SCALENE, or **SCALENOUS TRIANGLE**, *scalenum*, in geometry, a triangle whose sides and angles are unequal. See **GEOMETRY**.

Scald
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Scalene.

Travels
Asia Mi-

Scalenus,
Scaliger.

SCALENUS, in anatomy. See there, *Table of the Muscles.*

SCALIGER (Julius Cæsar), a learned critic, poet, physician, and philosopher; was born at the castle of Ripa, in the territories of Verona, in 1484; and is said to have been descended from the ancient princes of Verona, though this is not mentioned in the letters of naturalization he obtained in France in 1528. He learned the first rudiments of the Latin tongue in his own country; and in his 12th year was presented to the Emperor Maximilian, who made him one of his pages. He served that emperor 17 years, and gave signal proofs of his valour and conduct in several expeditions. He was present at the battle of Ravenna in April 1512, in which he had the misfortune to lose his father Benedict Scaliger, and his brother Titus; on which his mother died with grief: when being reduced to necessitous circumstances, he entered into the order of the Franciscans, and applied himself to study at Bologna; but soon after changing his mind with respect to his becoming a monk, he took arms again, and served in Piedmont. At which time a physician persuaded him to study physic, which he did at his leisure-hours, and also learned Greek; and at last the gout determined him, at 40 years of age, to abandon a military life. He soon after settled at Agen, where he married, and began to apply himself seriously to his studies. He learned first the French tongue, which he spoke perfectly in three months; and then made himself master of the Gascon, Italian, Spanish, German, Hungarian, and Slavonian: but the chief object of his studies was polite literature. Meanwhile, he supported his family by the practice of physic. He did not publish any of his works till he was 47 years of age; when he soon gained a great name in the republic of letters. He had a graceful person, and so strong a memory, even in his old age, that he dictated to his son 200 verses which he had composed the day before, and retained without writing them down. He was so charitable, that his house was as it were an hospital for the poor and sick; and he had such an aversion to lying, that he would have no correspondence with those who were given to that vice; but, on the other hand, he had much vanity, and a satirical spirit, which created him many enemies. He died, of a retention of urine in 1558. He wrote in Latin, 1. A Treatise on the Art of Poetry. 2. Exercitations against Carden: which works are much esteemed. 3. Commentaries on Aristotle's History of Animals, and on Theophrastus on Plants. 4. Some Treatises on Physic. 5. Letters, Orations, Poems, and other works, in Latin.

SCALIGER (Joseph Justus), one of the most learned critics and writers of his time; he was the son of the former, and was born at Agen in France in 1540. He studied in the college of Bourdeaux; after which his father took him under his own care, and employed him in transcribing his poems; by which means he obtained such a taste for poetry, that before he was 17 years old he wrote a tragedy upon the subject of Oedipus, in which he introduced all the poetical ornaments of style and sentiment. His father dying in 1558, he went to Paris the year following, with a design to apply himself to the Greek tongue. For this purpose he for two months attended the lectures of Turnebus; but finding that in the usual course he should be a long

time in gaining his point, he shut himself up in his closet, and by constant application for two years gained a perfect knowledge of that language. After which he applied to the Hebrew, which he learned by himself with great facility. He made no less progress in the sciences; and his writings procured him the reputation of one of the greatest men of that or any other age. He embraced the reformed religion at 22 years of age. In 1563, he attached himself to Lewis Casteignier de la Roch Pozay, whom he attended in several journeys; and in 1593, was invited to accept of the place of honorary professor of the university of Leyden, which he complied with. He died of a dropsey in that city in 1609. He was a man of great temperance; was never married; and was so close a student, that he often spent whole days in his study without eating; and though his circumstances were always very narrow, he constantly refused the presents that were offered him. He published many works; the principal of which are, 1. Notes on Seneca's Tragedies, on Varro, Aufonius, Pompeius Festus, &c. 2. His Latin Poems. 3. A Treatise de Emendatione Temporum. 4. Eusebius's Chronicle with Notes. 5. Canones Ifagogici; and many other works. The collections intitled *Scaligeriana*, were collected from his conversations by one of his friends; and being ranged into alphabetical order, were published by Isaac Vossius.

SCALLOP, in ichthyology. See PECTEN.

In the Highlands of Scotland, the great scallop shell is made use of for the skimming of milk. In old times, it had a more honourable place; being admitted into the halls of heroes, and was the cup of their festivity when the tribe assembled in the hall of their chieftain.

SCALPEL, in surgery, a kind of knife used in anatomical dissections and operations in surgery.

SCALPER, or SCALPING-IRON, a surgeon's instrument used for scraping foul carious bones.

SCALPING, in military history, a barbarous custom, in practice among the Indian warriors, of taking off the tops of the scalps of the enemies skulls with their hair on. They preserve them as trophies of their victories, and are rewarded by their chiefs according to the number of scalps they bring in.

SCALPRA DENTALIA, instruments used by the surgeons to take off those black, livid, or yellow crusts which infest the teeth, and not only loose and destroy them, but taint the breath.

SCAMMONY, a concreted vegetable juice of a species of convolvulus, partly of the resin, and partly of the gum kind. See CONVULVULUS.

The best scammony comes from Aleppo, in light spongy masses, easily friable, of a shining ash-colour verging to black; when powdered, of a light grey or whitish colour: an inferior sort is brought from Smyrna, in more compact ponderous pieces, of a darker colour, and full of sand and other impurities. This juice is chiefly of the resinous kind; rectified spirit dissolves five ounces out of six, the remainder is a mucilaginous substance mixed with dross; proof-spirit totally dissolves it, the impurities only being left. It has a faint unpleasant smell, and a bitterish, somewhat acrimonious, taste.

Scammony is an efficacious and strong purgative. Some have condemned it as unsafe, and laid sundry ill qualities to its charge; the principal of which is, that

Scallop
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Scammony

its operation is uncertain, a full dose proving sometimes ineffectual, whilst at others a much smaller one occasions dangerous hypercatharses. This difference, however, is owing entirely to the different circumstances of the patient, and not to any ill quality or irregularity of operation of the medicine: where the intestines are lined with an excessive load of mucus, the scammony passes through without exerting itself upon them; where the natural mucus is deficient, a small dose of this or any other resinous cathartic irritates and inflames. Many have endeavoured to abate the force of this drug, and correct its imaginary virulence, by exposing it to the fume of sulphur, dissolving it in acid juices, and the like; but this could do no more than destroy as it were a part of the medicine, without making any alteration in the rest. Scammony in substance, judiciously managed, stands not in need of any corrector: if triturated with sugar or with almonds, it becomes sufficiently safe and mild in operation. It may likewise be conveniently dissolved by trituration in a strong decoction of liquorice, and then poured off from the feces; the college of Wertemberg assures us, that by this treatment it becomes mildly purgative, without being attended with gripes, or other inconveniences; and that it likewise proves inoffensive to the palate. The common dose of scammony is from three to twelve grains.

SCANDALUM MAGNATUM, in law, is a defamatory speech or writing to the injury of a person of dignity; for which a writ that bears the same name is granted for the recovery of damages.

SCANDERBEG, the surname of George Castriot king of Albania, a province of Turkey in Europe, dependent on the Ottoman empire. He was delivered up with his three elder brothers as hostages, by their father, to Amurath II. sultan of the Turks, who poisoned his brothers, but spared him on account of his youth, being likewise pleased with his juvenile wit and amiable person. In a short time he became one of the most renowned generals of the age; and revolting from Amurath, he joined Hunniade Corvin, a most formidable enemy to the Ottoman power. He defeated the sultan's army, took Amurath's secretary prisoner, obliged him to sign and seal an order to the governor of Croia, the capital of Albania, to deliver up the citadel and city to the bearer of that order, in the name of the sultan. With this forged order he repaired to Croia; and thus recovered the throne of his ancestors, and maintained the independency of his country against the numerous armies of Amurath and his successor Mahommed II. who was obliged to make peace with this hero in 1461. He then went to the assistance of Ferdinand of Arragon, at the request of Pope Pius II. and by his assistance Ferdinand gained a complete victory over his enemy the count of Anjou. Scanderbeg died in 1467.

SCANDEROON. See **ALEXANDRETTA**.

SCANDINAVIA, a general name for the countries of Norway, Sweden, and Denmark, anciently under the dominion of one prince. The inhabitants of these countries, in former times, were excessively addicted to war. From their earliest years they applied themselves to the military art, and accustomed themselves to cold, fatigue, and hunger. Even the very sports of youth and childhood were dangerous.

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They consisted in taking frightful leaps, climbing up the steepest rocks, fighting naked with offensive weapons, wrestling with the utmost fury; so that it was usual to see them grown up to be robust men, and terrible in the combat, at the age of 15. At this early age the young men became their own masters; which they did by receiving a sword, a buckler, and a lance. This ceremony was performed at some public meeting. One of the principal men of the assembly named the youth in public; after which he was obliged to provide for his own subsistence, and was either now to live by hunting, or by joining in some incursion against the enemy. Great care was taken to prevent the young men from too early connections with the female sex; and indeed they could have no hope to gain the affection of the fair, but in proportion to the courage and address they had shown in their military exercises. Accordingly, in an ancient song, we find Bartholin, king of Norway, extremely surprised that his mistress should prove unkind, as he could perform eight different exercises. The children were generally born in camps; and being inured from their infancy to behold nothing but arms, effusion of blood, and slaughter, they imbibed the cruel disposition of their fathers, and when they broke forth upon other nations, behaved rather like furies than like human creatures.

The laws of this people, in some measure, resembled those of the ancient Lacedemonians. They knew no virtue but bravery, and no vice but cowardice. The greatest penalties were inflicted on such as fled from battle. The laws of the ancient Danes declared such persons infamous, and excluded them from society. Among the Germans, cowards were sometimes suffocated in mud; after which they were covered over with hurdles, to show, says Tacitus, that though the punishment of crimes should be public, there are certain degrees of cowardice and infamy which ought to be buried in oblivion. Frotho king of Denmark enacted, by law, that whoever solicited an eminent post ought upon all occasions to attack one enemy, to face two, to retire only one step back from three, and never to make an actual retreat till assaulted by four. The rules of justice themselves were adapted and warped to these prejudices. War was looked upon as a real act of justice, and force was thought to be an incontestable title over the weak, and a visible mark that God had intended them to be subject to the strong. They had no doubt but that the intentions of the Deity had been to establish the same dependence among men that takes place among inferior creatures; and, setting out from this principle of the natural inequality among men, they had from thence inferred that the weak had no right to what they could not defend. This maxim was adopted with such rigour, that the name of divine judgement was given not only to the judicatory combat, but to conflicts and battles of all sorts; victory being, in their opinion, the only certain mark by which providence enables us to distinguish those whom it has appointed to command others.—Lastly, their religion, by annexing eternal happiness to the military virtues, gave the utmost possible degree of vigour to that propensity which these people had for war, and to their contempt of death, of which we shall now give some instances. We are informed that Harold, surnamed *Blaaland*, or *Blue-tooth*, a king of Denmark, who lived in the be-

Scandinavia.
via.

Scandina-
via.

ginning of the ninth century, had founded on the coasts of Pomerania a city named *Julin* or *Jomsburg*. To this place he sent a colony of young Danes, bestowing the government on a celebrated warrior called *Palnatoko*. In this colony it was forbidden to mention the word *fear*, even in the most imminent dangers. No citizen of Jomsburg was to yield to any number of enemies however great. The sight of inevitable death was not to be taken as an excuse for showing the smallest apprehension. And this legislator really appears to have eradicated from the minds of most of the youths bred up under him, all traces of that sentiment so natural and so universal, which makes men think on their destruction with horror. Nothing can show this better than a single fact in their history, which deserves to have place here for its singularity. Some of them having made an irruption into the territories of a powerful Norwegian lord, named *Haquin*, were overcome in spite of the obstinacy of their resistance; and the most distinguished among them being made prisoners, were, according to the custom of those times, condemned to death. The news of this, far from afflicting them, was on the contrary received with joy. The first who was led to punishment was content to say, without changing countenance, and without expressing the least sign of fear, "Why should not the same happen to me as did to my father? He died, and so must I." A warrior, named *Thorchill*, who was to cut off the head of the second, having asked him what he felt at the sight of death, he answered, "that he remembered too well the laws of Jomsburg to utter any words that denoted fear." The third, in reply to the same question, said, "he rejoiced to die with glory; and that he preferred such a death to an infamous life like that of Thorchill's." The fourth made an answer much longer and more extraordinary. "I suffer with a good heart; and the present hour is to me very agreeable. I only beg of you (added he, addressing himself to Thorchill) to be very quick in cutting off my head; for it is a question often debated by us at Jomsburg, whether one retains any sense after being beheaded. I will therefore grasp this knife in my hand; if, after my head is cut off, I strike it towards you, it will show I have not lost all sense; if I let it drop, it will be a proof of the contrary. Make haste therefore, and decide the dispute." Thorchill, adds the historian, cut off his head in a most expeditious manner; but the knife, as might be expected, dropt from his hand. The fifth showed the same tranquillity, and died rallying and jeering his enemies. The sixth begged of Thorchill, that he might not be led to punishment like a sheep: "Strike the blow in my face (said he), I will sit still without shrinking; and take notice whether I once wink my eyes, or betray one sign of fear in my countenance: for we inhabitants of Jomsburg are used to exercise ourselves in trials of this sort, so as to meet the stroke of death without once moving." He kept his promise before all the spectators, and received the blow without betraying the least sign of fear, or so much as winking with his eyes. The seventh, says the historian, was a very beautiful young man, in the flower of his age. His long hair, as fine as silk, floated in curls and ringlets on his shoulders. Thorchill asked him, what he thought of death? "I receive it willingly (said he), since I have fulfilled the greatest duty of life, and have seen

all those put to death whom I would not survive. I only beg of you one favour, not to let my hair be touched by a slave, or stained with my blood."

Neither was this intrepidity peculiar to the inhabitants of Jomsburg; it was the general character of all the Scandinavians, of which we shall only give this further instance. A warrior, having been thrown upon his back in wrestling with his enemy, and the latter finding himself without his arms, the vanquished person promised to wait, without changing his posture, till his antagonist fetched a sword to kill him; and he faithfully kept his word.—To die with his arms in his hand was the ardent wish of every free man; and the pleasing idea which they had of this kind of death led them to dread such as proceeded from old age and disease. The history of ancient Scandinavia is full of instances of this way of thinking. The warriors who found themselves lingering in disease, often availed themselves of their few remaining moments to shake off life, by a way that they supposed to be more glorious. Some of them would be carried into a field of battle, that they might die in the engagement. Others slew themselves: many procured this melancholy service to be performed by their friends, who considered it as a most sacred duty. "There is, on a mountain of Iceland, (says the author of an old Iceland romance), a rock so high, that no animal can fall from the top and live. Here men betake themselves when they are afflicted and unhappy. From this place all our ancestors, even without waiting for sickness, have departed into Eden. It is useless, therefore, to give ourselves up to groans and complaints, or to put our relations to needless expences, since we can easily follow the example of our fathers, who have all gone by the way of this rock."—When all these methods failed, and at last when Christianity had banished such barbarous practices, the disconsolate heroes consoled themselves by putting on complete armour as soon as they found their end approaching.

SCANDIX, SHEPHERDS NEEDLE, or *Venus Comb*, in botany: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 45th order, *Umbellata*. The corolla is radiating; the fruit subulated; the petals emarginated; the florets of the disc frequently male. The most remarkable species is the odorata, with angular furrowed seeds. It is a native of Germany; and has a very thick perennial root, composed of many fibres, of a sweet aromatic taste like aniseed, from which come forth many large leaves that branch out somewhat like those of fern, from whence it is named *sweet-fern*. The stalks grow four or five feet high, are fistulous and hairy; the flowers are disposed in an umbel at the top of the stalk, are of a white colour, and have a sweet aromatic scent.—This species is easily propagated by seeds, which, if permitted to scatter, will supply an abundance of young plants, that may be put into any part of the garden, and require no care.

SCANNING, in poetry, the measuring of verse by feet, in order to see whether or not the quantities be duly observed. The term is chiefly used in Greek and Latin verses. Thus an hexameter verse is scanned by resolving it into six feet; a pentameter, by resolving it into five feet, &c.

nto, SCANTO, or SPAVENTO, a sudden impresson of horror upon the mind and body. It is extremely dreaded by the inhabitants of Sicily; and the wild ideas of the vulgar part of the inhabitants respecting it are almost incredible, and their dread of a sudden shock is no less surprising. There is scarce a symptom, disorder, or accident, they do not think may befall the human frame in consequence of the scanto. They are persuaded that a man who has been frightened only by a dog, a viper, scorpion, or any other creature, which he has an antipathy to, will soon be seized with the same pains he would really feel, had he been torn with their teeth, or wounded with their venomous sting; and that nothing can remove these nervous imaginary pangs but a strong dose of dilena, a species of cantharides found in Sicily.

SCAPE-GOAT, in the Jewish antiquities, the goat which was set at liberty on the day of solemn expiation. For the ceremonies on this occasion, see Levit. xvi. 5, 6, &c.

Some say, that a piece of scarlet cloth, in form of a tongue, was tied on the forehead of the scape-goat. *Hoff. Lex. Univ. in voc. Lingua.*

Many have been the disputes among the interpreters concerning the meaning of the word *scape goat*; or rather of *azazel*, for which *scape-goat* is put in our version of the Bible.

Spencer is of opinion, that *azazel* is a proper name, signifying the devil or evil demon. See his reasons in his book *De leg. Hebr. ritual.* Dissert. viii. Among other things, he observes, that the ancient Jews used to substitute the name *Samaël* for *Azazel*; and many of them have ventured to affirm, that at the feast of expiation they were obliged to offer a gift to *Samael* to obtain his favour. Thus also the goat, sent into the wilderness to *Azazel*, was understood to be a gift or oblation. Some Christians have been of the same opinion. But Spencer thinks that the genuine reasons of the ceremony were, 1. That the goat, loaded with the sins of the people, and sent to *Azazel*, might be a symbolical representation of the miserable condition of sinners. 2. God sent the goat thus loaded to the evil demons, to show that they were impure, thereby to deter the people from any conversation or familiarity with them. 3. That the goat sent to *Azazel*, sufficiently expiating all evils, the Israelites might the more willingly abstain from the expiatory sacrifices of the Gentiles.

SCAPULA, in anatomy, the shoulder, or shoulder-bone.

SCAPULA (John), the reputed author of a Greek lexicon, studied at Lausanne. His name is recorded in the annals of literature, neither on account of his talents nor learning, nor virtuous industry, but for a gross act of dissimulation and fraud which he committed against an eminent literary character of the 16th century. Being employed by Henry Stephens as a corrector to his press while he was publishing his *Thesaurus lingue Græcæ*, Scapula extracted those words and explanations which he reckoned most useful, comprised them in one volume, and published them as an original work, with his own name.

The compilation and printing of the *Thesaurus* had cost Stephens immense labour and expence; but it was so much admired by those learned men to whom he had

shown it, and seemed to be of such essential importance to the acquisition of the Greek language, that he reasonably hoped his labour would be crowned with honour, and the money he had expended would be repaid by a rapid and extensive sale. But before his work came abroad, Scapula's abridgment appeared; which, from its size and price, was quickly purchased, while the *Thesaurus* itself lay neglected in the author's hands. The consequence was, a bankruptcy on the part of Stephens, while he who had occasioned it was enjoying the fruits of his treachery. Scapula's Lexicon was first printed in 1570, in 4to. It was afterwards enlarged, and published in folio. It has gone through several editions, while the valuable work of Stephens has never been reprinted. Its success is, however, not owing to its superior merit, but to its price and more commodious size: Stephens charges the author with omitting a great many important articles. He accuses him of misunderstanding and perverting his meaning; and of tracing out absurd and trifling etymologies, which he himself had been careful to avoid. He composed the following epigram on Scapula:

*Quidam ἐπιτεμὼν me capulo tenui abdidit enseni
Æger eram a Scapulis, sanus et huc redeo.*

Doctor Busby, so much celebrated for his knowledge of the Greek language, and his success in teaching it, would never permit his scholars at Westminster school to make use of Scapula.

SCAPULAR, in anatomy, the name of two pair of arteries, and as many veins.

SCAPULAR, or *Scapulary*, a part of the habit of several religious orders in the church of Rome, worn over the gown as a badge of peculiar veneration for the Blessed Virgin. It consists of two narrow slips or breadths of cloth covering the back and the breast, and hanging down to the feet.—The devotees of the scapulary celebrate its festival on the 10th of July.

SCARABÆUS, the BEETLE, in zoology, a genus of insects of the coleoptera order: the antennæ of the beetles are of a clavated figure, and filiform longitudinally; and their legs are frequently dentated. There are 87 species; all, however, concurring in one common formation of having cases to their wings, which are the more necessary to those insects, as they often live under the surface of the earth, in holes, which they dig out by their own industry. The cases prevent the various injuries their real wings might sustain by rubbing or crushing against the sides of their abode. These, though they do not assist flight, yet keep the internal wings clean and even, and produce a loud buzzing noise when the animal rises in the air.

If we examine the formation of all animals of the beetle kind, we shall find, as in shell-fish, that their bones are placed externally, and their muscles within. These muscles are formed very much like those of quadrupeds; and are formed with such surprising strength, that, bulk for bulk, they are a thousand times stronger than those of a man. The strength of these muscles is of use in digging the animal's subterraneous abode, whither it most frequently returns, even after it becomes a winged insect capable of flying.

Besides the difference which results from the shape and colour of these animals, the size also makes a considerable one; some beetles being not larger than the

Scarabæus. head of a pin; while others, such as the elephant beetle, are as big as one's fist. But the greatest difference among them is, that some are produced in a month, and in a single season go through all the stages of their existence; while others take near four years to their production, and live as winged insects a year more.

The may-bug, dorr-beetle, or cock-chaffer, has, like all the rest, a pair of cases to its wings, which are of a reddish brown colour, sprinkled with a whitish dust, which easily comes off. In some years their necks are seen covered with a red plate, and in others with a black; these, however, are distinct sorts, and their difference is by no means accidental. The fore-legs are very short, and the better calculated for burrowing in the ground, where this insect makes its retreat. It is well known, for its evening buzz, to children; but still more formidably introduced to the acquaintance of the husbandman and gardener, for in some seasons it has been found to swarm in such numbers as to eat up every vegetable production.

The two sexes in the may-bug are easily distinguished from each other, by the superior length of the tufts, at the end of the horns, in the male. They begin to copulate in summer; and at that season they are seen joined together for a considerable time. They fly about in this state, the one hanging pendant from the tail of the other. It has been supposed, that, like snails, they are hermaphrodites, as there seems to be a mutual insertion.

The female being impregnated, quickly falls to boring a hole into the ground, wherein to deposit her burden. This is generally about half a foot deep; and in it she places her eggs, which are of an oblong shape, with great regularity, one by the other. They are of a bright yellow colour, and no way wrapped up in a common covering, as some have imagined. When the female is lightened of her burden, she again ascends from her hole, to live, as before, upon leaves and vegetables, to buzz in the summer evening, and to lie hid among the branches of trees in the heat of the day.

In about three months after these eggs have been thus deposited in the earth, the contained insect begins to break its shell, and a small grub or maggot crawls forth, and feeds upon the roots of whatever vegetable it happens to be nearest. All substances, of this kind, seem equally grateful; yet it is probable the mother insect has a choice among what kind of vegetables she shall deposit her young. In this manner these voracious creatures continue in the worm state for more than three years, devouring the roots of every plant they approach, and making their way under ground in quest of food with great dispatch and facility. At length they grow to above the size of a walnut, being a great thick white maggot with a red head, which is seen most frequently in new turned earth, and which is so eagerly sought after by birds of every species. When largest, they are found an inch and a half long, of a whitish yellow colour; with a body consisting of twelve segments or joints, on each side of which there are nine breathing holes, and three red feet. The head is larger in proportion to the body, of a reddish colour, with a pincer before, and a semicircular lip, with which it cuts the roots of plants, and sucks out their moisture. As this insect

lives entirely under ground, it has no occasion for *Scarabæus* eyes; and accordingly it is found to have none; but is furnished with two feelers, which, like the crutch of a blind man, serve to direct its motions. Such is the form of this animal, that lives for years in the worm state under ground, still voracious, and every year changing its skin.

It is not till the end of the fourth year that this extraordinary insect prepares to emerge from its subterraneous abode, and even this is not effected but by a tedious preparation. About the latter end of autumn, the grub begins to perceive the approaches of its transformation: it then buries itself deeper and deeper in the earth, sometimes six feet beneath the surface; and there forms itself a capacious apartment, the walls of which it renders very smooth and shining by the excretions of its body. Its abode being thus formed, it begins soon after to shorten itself, to swell, and to burst its last skin in order to assume the form of a chrysalis. This, in the beginning, appears of a yellowish colour, which heightens by degrees, till at last it is seen nearly red. Its exterior form plainly discovers all the vestiges of the future winged insect, all the fore parts being distinctly seen; while, behind, the animal seems as if wrapped in swaddling clothes.

The young may-bug continues in this state for about three months longer; and it is not till the beginning of January that the aurelia divests itself of all its impediments, and becomes a winged insect completely formed. Yet still the animal is far from attaining its natural strength, health, and appetite. It undergoes a kind of infant imbecility; and unlike most other insects, that the instant they become flies are arrived at their state of full perfection, the may-bug continues feeble and sickly. Its colour is much brighter than in the perfect animal; all its parts are soft; and its voracious nature seems for a while to have entirely forsaken it. As the animal is very often found in this state, it is supposed, by those unacquainted with its real history, that the old ones, of the former season, have buried themselves for the winter, in order to revisit the sun the ensuing summer. But the fact is, the old one never survives the season; but dies, like all the other winged tribe of insects, from the severity of cold in winter.

About the latter end of May, these insects, after having lived for four years under ground, burst from the earth when the first mild evening invites them abroad. They are at that time seen rising from their long imprisonment, from living only upon roots, and imbibing only the moisture of the earth, to visit the mildness of the summer air, to choose the sweetest vegetables for their banquet, and to drink the dew of the evening. Wherever an attentive observer then walks abroad, he will see them bursting up before him in his pathway, like ghosts on a theatre. He will see every part of the earth, that had its surface beaten into hardness, perforated by their egression. When the season is favourable for them, they are seen by myriads buzzing along, hitting against every object that intercepts their flight. The mid-day sun, however, seems too powerful for their constitutions: they then lurk under the leaves and branches of some shady tree; but the willow seems particularly their most favourite food; there they lurk in clusters, and seldom quit

quit the tree till they have devoured all its verdure. In those seasons which are favourable to their propagation, they are seen in an evening as thick as flakes of snow, and hitting against every object with a sort of capricious blindness. Their duration, however, is but short, as they never survive the season. They begin to join shortly after they have been let loose from their prison; and when the female is impregnated, she cautiously bores a hole in the ground, with an instrument fitted for that purpose with which she is furnished at the tail; and there deposits her eggs, generally to the number of three score. If the season and the soil be adapted to their propagation, these soon multiply as already described, and go through the various stages of their contemptible existence. This insect, however, in its worm state, though prejudicial to man, makes one of the chief repasts of the feathered tribe, and is generally the first nourishment with which they supply their young. Hogs will root up the land for them, and at first eat them greedily; but seldom meddle with them a second time. Rooks are particularly fond of these worms, and devour them in great numbers. The inhabitants of the county of Norfolk, some time since, went into the practice of destroying their rookeries; but in proportion as they destroyed one plague, they were pestered with a greater; and these insects multiplied in such an amazing abundance, as to destroy not only the verdure of the fields, but even the roots of vegetables not yet shot forth. One farm in particular was so injured by them in the year 1751, that the occupier was not able to pay his rent; and the landlord was not only content to lose his income for that year, but also gave money for the support of the farmer and his family. In Ireland they suffered so much by these insects, that they came to a resolution of setting fire to a wood, of some extent, to prevent their mischievous propagation.

"Neither the severest frosts in our climate (says Mr Rack), nor even keeping them in water, will kill them. I have kept some in water near a week; they appeared motionless; but on exposing them to the sun and air a few hours, they recovered, and were as lively as ever. Hence it is evident they can live without air. On examining them with a microscope, I could never discover any organs for respiration, or perceive any pulsation. When numerous, they are not destroyed without great difficulty; the best method is, to plough up the land in thin furrows, and employ children to pick them up in baskets; and then strew salt and quick-lime, and harrow in. About 30 years since I remember many farmers crops in Norfolk were almost ruined by them in their grub-state; and in the next season, when they took wing, the trees and hedges in many parishes were stripped bare of their leaves as in winter. At first the people used to brush them down with poles, and then sweep them up and burn them. One farmer made oath that he gathered 80 bushels; but their number seemed not much lessened, except just in his own fields."

The *scarabæus carnifex*, which the Americans call the *tumble-dung*, particularly demands our attention. It is all over of a dusky black, rounder than those animals are generally found to be, and so strong, though not much larger than the common black beetle, that if one of them be put under a brass candlestick, it will cause it to move backwards and forwards, as if it were by an

invisible hand, to the admiration of those who are not accustomed to the sight: but this strength is given it for much more useful purposes than those of exciting human curiosity; for there is no creature more laborious, either in seeking subsistence, or providing a proper retreat for its young. They are endowed with sagacity to discover subsistence by their excellent smelling, which directs them in flights to excrements just fallen from man or beasts, on which they instantly drop, and fall unanimously to work in forming round balls or pellets thereof, in the middle of which they lay an egg. These pellets, in September, they convey three feet deep in the earth, where they lie till the approach of spring, when the eggs are hatched and burst their nests, and the insects find their way out of the earth. They assist each other with indefatigable industry in rolling these globular pellets to the place where they are to be buried. This they are to perform with the tail foremost, by raising up their hinder part, and shoving along the ball with their hind-feet. They are always accompanied with other beetles of a larger size, and of a more elegant structure and colour. The breast of this is covered with a shield of a crimson colour, and shining like metal; the head is of the like colour, mixed with green; and on the crown of the head stands a shining black horn, bending backwards. These are called the *kings of the beetles*; but for what reason is uncertain, since they partake of the same dirty drudgery with the rest.

The *elephant-beetle* is the largest of this kind hitherto known; and is found in South America, particularly in Guinea and Surinam, as well as about the river Oroonoko. It is of a black colour; and the whole body is covered with a very hard shell, full as thick and as strong as that of a small crab. Its length, from the hinder part to the eyes, is almost four inches; and from the same part to the end of the proboscis or trunk, four inches and three quarters. The transverse diameter of the body is two inches and a quarter; and the breadth of each elytron, or case for the wings, is an inch and three-tenths. The antennæ or feelers are quite horny; for which reason the proboscis or trunk is moveable at its insertion into the head, and seems to supply the place of feelers; the horns are eight-tenths of an inch long, and terminate in points. The proboscis is an inch and a quarter long, and turns upwards; making a crooked line, terminating in two horns, each of which is near a quarter of an inch long; but they are not perforated at the end like the proboscis of other insects. About four-tenths of an inch above the head, or that side next the body, is a prominence or small horn; which, if the rest of the trunk were away, would cause this part to resemble the horn of a rhinoceros. There is indeed a beetle so called; but then the horns or trunk has no fork at the end, though the lower horn resembles this. The feet are all forked at the end, but not like lobsters claws. See Plate CCCCXLIV.

SCARBOROUGH, a town of the North Riding of Yorkshire, seated on a steep rock, near which are such craggy cliffs that it is almost inaccessible on every side. On the top of this rock is a large green plain, with two wells of fresh water springing out of the rock. It has of late been greatly frequented on account of its mineral waters called the *Scarborough-Spa*; on which account it is much mended in the number and beauty of the buildings. The spring was under the cliff, part of which

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which fell down in 1737, and the water was lost; but in clearing away the ruins in order to rebuild the wharf, it was recovered, to the great joy of the town. The waters of Scarborough are chalybeate and purging. The two wells are both impregnated with the same principles, in different proportions; though the purging well is the most celebrated, and the water of this is usually called the *Scarborough water*. When these waters are poured out of one glass into another, they throw up a number of air-bubbles; and if they are shaken for some time in a phial close stopped, and the phial be suddenly opened before the commotion ceases, they displode an elastic vapour, with an audible noise, which shows that they abound in fixed air. At the fountain they have a brisk, pungent, chalybeate taste; but the purging water tastes bitterish, which is not usually the case with the chalybeate one. They lose their chalybeate virtues by exposure and by keeping; but the purging water the soonest. They both putrefy by keeping; but in time recover their sweetness. Four or five half pints of the purging water drank within an hour, give two or three easy motions, and raise the spirits. The like quantity of the chalybeate purges less, but exhilarates more, and passes off chiefly by urine. These waters have been found beneficial in hectic fevers, weaknesses of the stomach, and indigestion; in relaxations of the system; in nervous, hysteric, and hypochondriacal disorders; in the green sickness, scurvy, rheumatism, and asthmatic complaints; in gleets, the fluor albus, and other preternatural evacuations; and in habitual costiveness. Here are assemblies and balls in the same manner as at Tunbridge. It is a place of some trade, has a very good harbour, and sends two members to parliament. E. Long. 54. 18. N. Lat. 0 3.

SCARDONA, a sea port town of Dalmatia, seated on the eastern banks of the river Cherca, with a bishop's see. It has been taken and retaken several times by the Turks and Venetians; and these last ruined the fortifications and its principal buildings in 1537; but they have been since put in a state of defence.

Travels into
Dalmatia.

"No vestiges (says Fortis) now remain visible of that ancient city, where the states of Liburnia held their assembly in the times of the Romans. I however transcribed these two beautiful inscriptions, which were discovered some years ago, and are preserved in the house of the reverend Canon Mercati. It is to be hoped, that, as the population of Scardona continues increasing, new lands will be broken up, and consequently more frequent discoveries made of the precious monuments of antiquity. And it is to be wished, that the few men of letters, who have a share in the regulation of this reviving city, may bestow some particular attention on that article, so that the honourable memorials of their ancient and illustrious country, which once held so eminent a rank among the Liburnian cities, may not be lost, nor carried away. It is almost a shame, that only six legible inscriptions actually exist at Scardona; and that all the others, since many more certainly must have been dug up there, are either miserably broken, or lost, or transported to Italy, where they lose the greatest part of their merit. Roman coins are very frequently found about Scardona, and several valuable ones were shown to me by that hospitable prelate Monsignor Trevisani, bishop and father of the rising settlement. One of the principal gentlemen of the place was so kind as to

give me several sepulchral lamps, which are marked by the name of *Fortis*, and by the elegant form of the letters appear to be of the best times. The repeated devastations to which Scardona has been exposed, have left it no traces of grandeur. It is now, however, beginning to rise again, and many merchants of Servia and Bosnia have settled there, on account of the convenient situation for trade with the upper provinces of Turkey. But the city has no fortifications, notwithstanding the assertion of P. Farlati to the contrary." E. Long. 17. 25. N. Lat. 43. 55.

SCARIFICATION, in surgery, the operation of making several incisions in the skin by means of lances or other instruments, particularly the cupping instrument. See SURGERY.

SCARLET, a beautiful bright red colour.

In painting in water-colours, minium mixed with a little vermilion produces a good scarlet: but if a flower in a print is to be painted a scarlet colour, the lights as well as the shades should be covered with minium, and the shaded parts finished with carmine, which will produce an admirable scarlet.

SCARLET-FEVER. See MEDICINE, n° 230.

SCARP, in fortification, is the interior talus or slope of the ditch next the place, at the foot of the rampart.

SCARP, in heraldry, the scarf which military commanders wear for ornament. It is borne somewhat like a battoon sinister, but is broader than it, and is continued out to the edges of the field, whereas the battoon is cut off at each end.

SCARPANTO, an island of the Archipelago, and one of the Sporades, lying to the south-west of the isle of Rhodes, and to the north-east of that of Candia. It is about 22 miles in length and 8 in breadth; and there are several high mountains. It abounds in cattle and game; and there are mines of iron, quarries of marble, with several good harbours. The Turks are masters of it, but the inhabitants are Greeks.

SCARPE, a river of the Netherlands, which has its source near Aubigny in Artois, where it washes Arras and Douay; after which it runs on the confines of Flanders and Hainault, passing by St Omand, and a little after falls into the Scheldt.

SCARRON (Paul), a famous burlesque writer, was the son of a counsellor in parliament, and was born at Paris about the end of the year 1610, or in the beginning of the succeeding year. His father marrying a second time, he was compelled to assume the ecclesiastical profession. At the age of 24 he visited Italy, where he freely indulged in licentious pleasures. After his return to Paris he persisted in a life of dissipation till a long and painful disease convinced him that his constitution was almost worn out. At length when engaged in a party of pleasure at the age of 27, he lost the use of those legs which danced so gracefully, and of those hands which could paint and play on the lute with so much elegance. In the year 1638 he was attending the carnival at Mens, of which he was a canon. Having dressed himself one day as a savage, his singular appearance excited the curiosity of the children of the town. They followed him in multitudes, and he was obliged to take shelter in a marsh. This wet and cold situation produced a numbness which totally deprived him of the use of his limbs; but notwithstanding this misfortune he continued gay and cheerful. He took up his residence at Paris,

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Scarron

Paris, and by his pleasant humour soon attracted to his house all the men of wit about the city. The loss of his health was followed by the loss of his fortune. On the death of his father he entered into a process with his mother-in-law. He pleaded the cause in a ludicrous manner, though his whole fortune depended on the decision. He accordingly lost the cause. Mademoiselle de Hauteport, compassionating his misfortunes, procured for him an audience of the queen. The poet requested to have the title of *Valetudinarium* to her majesty. The queen smiled, and Scarron considered the smile as the commission to his new office. He therefore assumed the title of *Scarron, by the grace of God, unworthy valetudinarium to the queen*.

Cardinal Mazarine gave him a pension of 500 crowns; but that minister having received disdainfully the dedication of his *Typhon*, the poet immediately wrote a *Mazarinade*, and the pension was withdrawn. He then attached himself to the prince of Condé, and celebrated his victories. He at length formed the extraordinary resolution of marrying, and was accordingly, in 1651, married to Mademoiselle d'Aubigné (afterwards the famous Madam de Maintenon), who was then only 16 years of age. "At that time (says Voltaire) it was considered as a great acquisition for her to gain for a husband a man who was disfigured by nature, impotent, and very little enriched by fortune." When Scarron was questioned about the contract of marriage, he said he acknowledged to the bride two large invincible eyes, a very beautiful shape, two fine hands, and a large portion of wit. The notary demanded what dowry he would give her? Immediately replied Scarron, "The names of the wives of kings die with them, but the name of Scarron's wife shall live for ever." She restrained by her modesty his indecent buffooneries, and the good company which had formerly resorted to his house were not less frequent in their visits. Scarron now became a new man. He became more decent in his manners and conversation: and his gaiety, when tempered with moderation, was still more agreeable. But, in the mean time, he lived with so little economy, that his income was soon reduced to a small annuity and his marquise of Quinet. By the marquise of Quinet, he meant the revenue he derived from his publications, which were printed by one Quinet. He was accustomed to talk to his superiors with great freedom in his jocular style. In the dedication to his *Don Japhet d'Armenie*, he thus addresses the king. "I shall endeavour to persuade your majesty, that you would do yourself no injury were you to do me a small favour; for in that case I should become more gay: if I should become more gay, I should write sprightly comedies: and if I should write sprightly comedies, your majesty would be amused, and thus your money would not be lost. All this appears so evident, that I should certainly be convinced of it if I were as great a king as I am now a poor unfortunate man."

Though Scarron wrote comedies, he had neither time nor patience to study the rules and models of dramatic poetry. Aristotle and Horace, Plautus and Terence, would have frightened him; and perhaps he did not know that there was ever such a person as Aristophanes. He saw an open path before him, and he followed it. It was the fashion of the times to pillage the Spanish writers. Scarron was acquainted with that

language, and he found it easier to use the materials which were already prepared, than to rack his brain in inventing a subject; a restraint to which a genius like his could not easily submit. As he borrowed liberally from the Spanish writers, a dramatic piece did not cost him much labour. His labour consisted not in making his comic characters talk humorously, but in keeping up serious characters; for the serious was a foreign language to him. The great success of his *Jodelet Maitre* was a vast allurements to him. The comedians who acted it eagerly requested more of his productions. They were written without much toil, and they procured him large sums. They served to amuse him. If it be necessary to give more reasons for Scarron's readiness to engage in these works, abundance may be had. He dedicated his books to his sister's greyhound bitch; and when she failed him, he dedicated them to a certain Monseigneur, whom he praised higher, but did not much esteem. When the office of historiographer became vacant, he solicited for it without success. At length Fouquet gave him a pension of 1600 livres. Christina queen of Sweden having come to Paris, was anxious to see Scarron. "I permit you (said she to Scarron) to fall in love with me. The queen of France has made you her valetudinarium, and I create you my *Roland*." Scarron did not long enjoy that title: he was seized with so violent a hiccough, that every person thought he would have expired. "If I recover (he said), I will make a fine satire on the hiccough." His gaiety did not forsake him to the last. Within a few minutes of his death, when his domestics were shedding tears about him, "My good friends (said he), I shall never make you weep so much for me as I have made you laugh." Just before expiring, he said, "I could never believe before that it is so easy to laugh at death." He died on the 14th of October 1660, in the 51st year of his age.

His works have been collected and published by Bruzen de la Martiniere, in 10 vols 12mo, 1737. There are, 1. The *Eneid* travestied, in 8 books. It was afterwards continued by Moreau de Bracey. 2. *Typhon*, or the *Gigantomachia*. 3. Many comedies; as, *Jodelet*, or the *Master Valet*; *Jodelet cuffed*; *Don Japhet d'Armenie*; *The Ridiculous Heir*; *Every Man his own Guardian*; *The Foolish Marquis*; *The Scholar of Salamanca*; *The False Appearance*; *The Prince Corsaire*, a tragi-comedy. Besides these, he wrote other pieces in verse. 4. His *Comic Romance* in prose, which is the only one of his works that deserves attention. It is written with much purity and gaiety, and has contributed not a little to the improvement of the French language. Scarron had great pleasure in reading his works to his friends as he composed them: he called it trying his works. Segrais and another of his friends coming to him one day, "Take a chair (says Scarron to them) and sit down, that I may examine my *Comic Romance*." When he observed the company laugh. "Very well (said he), my book will be well received since it makes persons of such delicate taste laugh." Nor was he deceived: His *Romance* had a prodigious run. It was the only one of his works that Boileau could submit to read. 5. Spanish Novels translated into French. 6. A volume of Letters. 7. Poems; consisting of Songs, Epistles, Stanzas, Odes, and Epigrams. The whole collection abounds with sprightliness and gaiety. Scarron

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can raise a laugh in the most serious subjects; but his fallies are rather those of a buffoon than the effusions of ingenuity and taste. He is continually falling into the mean and the obscene. If we should make any exception in favour of some of his comedies, of some passages in his *Eneid* travestied, and his *Comic Romance*, we must acknowledge that all the rest of his works are only fit to be read by footmen and buffoons. It has been said that he was the most eminent man in his age for burlesque. This might make him an agreeable companion to those who chose to laugh away their time; but as he has left nothing that can instruct posterity, he has but little title to posthumous fame.

SCENE, in its primary sense, denoted a theatre, or the place where dramatic pieces and other public shows were exhibited; for it does not appear that the ancient poets were at all acquainted with the modern way of changing the scenes in the different parts of the play, in order to raise the idea of the persons represented by the actors being in different places.

The original scene for acting of plays was as simple as the representations themselves: it consisted only of a plain plot of ground proper for the occasion, which was in some degree shaded by the neighbouring trees, whose branches were made to meet together, and their vacancies supplied with boards, sticks, and the like; and to complete the shelter, these were sometimes covered with skins, and sometimes with only the branches of other trees newly cut down, and full of leaves. Afterwards more artificial scenes, or scenical representations, were introduced, and paintings used instead of the objects themselves. Scenes were then of three sorts; tragic, comic, and satyric. The tragic scene represented stately magnificent edifices, with decorations of pillars, statues, and other things suitable to the palaces of kings: the comic exhibited private houses with balconies and windows, in imitation of common buildings; and the satyric was the representation of groves, mountains, dens, and other rural appearances; and these decorations either turned on pivots, or slid along grooves, as those in our theatres.

To keep close to nature and probability, the scene should never be shifted from place to place in the course of the play: the ancients were pretty severe in this respect, particularly Terence, in some of whose plays the scene never shifts at all, but the whole is transacted at the door of some old man's house, whither with inimitable art he occasionally brings the actors. The French are pretty strict with respect to this rule; but the English pay very little regard to it.

Scene is also a part or division of a dramatic poem. Thus plays are divided into acts, and acts are again subdivided into scenes; in which sense the scene is properly the persons present at or concerned in the action on the stage at such a time: whenever, therefore, a new actor appears, or an old one disappears, the action is changed into other hands; and therefore a new scene then commences.

It is one of the laws of the stage, that the scenes be well connected; that is, that one succeed another in such a manner as that the stage be never quite empty till the end of the act. See POETRY.

SCENOGRAPHY, (from the Greek, *σκηνή* scene, and *γραφία* description), in perspective, a representation of a body on a perspective plane; or a description thereof

in all its dimensions, such as it appears to the eye. See SCENOPERSPECTIVE.

SCEPTIC, *σκηπτικός*, from *σκηπτομαι*, "I consider, look about, or deliberate," properly signifies *considerative* and *inquisitive*, or one who is always weighing reasons on one side, and the other without ever deciding between them. It is chiefly applied to an ancient sect of philosophers founded by Pyrrho (see PYRRHO), who, according to Laetius, had various other denominations. From their master they were called *Pyrrhonians*; from the distinguishing tenets or characteristic of their philosophy they derived the name of *Aporētics*, from *ἀπορίω*, "to doubt;" from their suspension and hesitation they were called *ephectici*, from *ἐπιχειν*, "to stay or keep back;" and lastly, they were called *zetetici* or *seekers*, from their never getting beyond the search of truth.

That the sceptical philosophy is absurd, can admit of no dispute in the present age; and that many of the followers of Pyrrho carried it to the most ridiculous height, is no less true. But we cannot believe that he himself was so extravagantly sceptical as has sometimes been asserted, when we reflect on the particulars of his life, which are still preserved, and the respectful manner in which we find him mentioned by his contemporaries and writers of the first name who flourished soon after him. The truth, as far as at this distance of time it can be discovered, seems to be, that he learned from Democritus to deny the real existence of all qualities in bodies, except those which are essential to primary atoms, and that he referred every thing else to the perceptions of the mind produced by external objects, in other words, to appearance and opinion. All knowledge of course appeared to him to depend on the fallacious report of the senses, and consequently to be uncertain; and in this notion he was confirmed by the general spirit of the Eleatic school in which he was educated. He was further confirmed in his scepticism by the subtleties of the Dialectic schools, in which he had been instructed by the son of Stilpo; choosing to overturn the cavils of sophistry by recurring to the doctrine of universal uncertainty, and thus breaking the knot which he could not unloose. For being naturally and habitually inclined to consider immoveable tranquillity as the great end of all philosophy, he was easily led to despise the dissensions of the dogmatists, and to infer from their endless disputes, the uncertainty of the questions on which they debated; controversy, as it has often happened to others, becoming also with respect to him the parent of scepticism.

Pyrrho's doctrines, however new and extraordinary, were not totally disregarded. He was attended by several scholars, and succeeded by several followers, who preserved the memory of his notions. The most eminent of his followers was Timon (see TIMON), in whom the public succession of professors in the Pyrrhonic school terminated. In the time of Cicero it was almost extinct, having suffered much from the jealousy of the dogmatists, and from a natural aversion in the human mind to acknowledge total ignorance, or to be left in absolute darkness. The disciples of Timon, however, still continued to profess scepticism, and their notions were embraced privately at least by many others. The school itself was afterwards revived by Ptolemaeus a Cyrenian, and was continued by Aenesidemus a contemporary of Cicero, who wrote a treatise on the principles of the Pyrrhonic philosophy, the heads of which are preserved by

Photius. From this time it was continued through a series of preceptors of little note to Sextus Empiricus, who also gave a summary of the sceptical doctrine.

A system of philosophy thus founded on doubt, and clouded with uncertainty, could neither teach tenets of any importance, nor prescribe a certain rule of conduct; and accordingly we find that the followers of scepticism were guided entirely by chance. As they could form no certain judgment respecting good and evil, they accidentally learned the folly of eagerly pursuing any apparent good, or of avoiding any apparent evil; and their minds of course settled into a state of undisturbed tranquillity, the grand postulatam of their system.

In the schools of the sceptics we find ten distinct topics of argument urged in support of the doctrine of uncertainty, with this precaution; however, that nothing could be positively asserted either concerning their number or their force. These arguments chiefly respect objects of sense: they place all knowledge in appearance; and, as the same things appear very different to different people, it is impossible to say which appearance most truly expresses their real nature. They likewise say, that our judgment is liable to uncertainty from the circumstance of frequent or rare occurrence, and that mankind are continually led into different conceptions concerning the same thing by means of custom, law, fabulous tales, and established opinions. On all these accounts they think every human judgment is liable to uncertainty; and concerning any thing they can only assert, that it seems to be, not that it is what it seems.

This doubtful reasoning, if reasoning it may be called, the sceptics extended to all the sciences in which they discovered nothing true, or which could be absolutely asserted. In all nature, in physics, morals, and theology, they found contradictory opinions, and inexplicable or incomprehensible phenomena. In physics, the appearances they thought might be deceitful; and respecting the nature of God and the duties of morality, men were, in their opinion, equally ignorant and uncertain. To overturn the sophistical arguments of these sceptical reasoners would be no difficult matter, if their reasoning were worthy of confutation. Indeed, their great principle is sufficiently, though shortly, refuted by Plato, in these words. "When you say all things are incomprehensible (says he), do you comprehend or conceive that they are thus incomprehensible, or do you not? If you do, then something is comprehensible; if you do not, there is no reason we should believe you, since you do not comprehend your own assertion."

But scepticism has not been confined entirely to the ancients and to the followers of Pyrrho. Numerous sceptics have arisen also in modern times, varying in their principles, manners, and character, as chance, prejudice, vanity, weakness, or indolence, prompted them. The great object, however, which they seem to have in view, is to overturn, or at least to weaken, the evidence of analogy, experience, and testimony; though some of them have even attempted to show, that the axioms of geometry are uncertain, and its demonstrations inconclusive. This last attempt has not indeed been often made; but the chief aim of Mr Hume's philosophical writings is to introduce doubts into every branch of physics, metaphysics, history, ethics, and theology. It is needless to give a specimen of his reasonings in support of modern scepticism. The most important of them have

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been noticed elsewhere (see MIRACLE, METAPHYSICS, and PHILOSOPHY, n° 41.); and such of our readers as have any relish for speculations of that nature can be no strangers to his Essays, or to the able confutations of them by the Doctors Reid, Campbell, Gregory, and Beattie, who have likewise exposed the weakness of the sceptical reasonings of Des Cartes, Malbranche, and other philosophers of great fame in the same school.

SCEPTICISM, the doctrines and opinions of the sceptics. See the preceding article.

SCEPTRE, a kind of royal staff, or baton, borne on solemn occasions by kings, as a badge of their command and authority. Nicod derives the word from the Greek σκηπτρον, which he says originally signified "a javelin," which the ancient kings usually bore as a badge of their authority; that instrument being in very great veneration among the heathens. But σκηπτρον does not properly signify a javelin, but a staff to rest upon, from σκηπτός, innitor, "I lean upon." Accordingly, in the simplicity of the earlier ages of the world, the sceptres of kings were no other than long walking-staves: and Ovid, in speaking of Jupiter, describes him as resting on his sceptre (Met. i. v. 178.) The sceptre is an ensign of royalty of greater antiquity than the crown. The Greek tragic and other poets put sceptres in the hands of the most ancient kings they ever introduce. Justin observes, that the sceptre, in its original, was an *hasta*, or spear. He adds, that, in the most remote antiquity, men adored the *hasta* or sceptres as immortal gods; and that it was upon this account, that, even in his time, they still furnished the gods with sceptres.—Neptune's sceptre is his trident. Tarquin the Elder was the first who assumed the sceptre among the Romans. Le Gendre tells us, that, in the first race of the French kings, the sceptre was a golden rod, almost always of the same height with the king who bore it, and crooked at one end like a crozier. Frequently instead of a sceptre, kings are seen on medals with a palm in their hand. See REGALIA.

SCHÆFFERA, in botany: A genus of the tetrandria order, belonging to the diœcia class of plants; and in the natural method ranking with those that are doubtful. The calyx is quadripetalous; the corolla is quadripetalous, quinquepetalous, and often wanting; the fruit is a bilocular berry with one seed. Of this there are two species, both natives of Jamaica; and grow in the lowlands near the sea: viz. 1. The *Completa*. 2. *Lateriflora*.

SCHAFFHAUSEN, a large, handsome, and strong town of Swisserland, capital of a canton of the same name, with a castle in the form of a citadel. It is well built, with fine large streets, and adorned with several fountains; and the greatest part of the houses are painted on the outside. It is well fortified, and the cathedral is the largest church in Swisserland; besides which, the minster, with the monastery adjoining thereto, the arsenal, the town-house, the great clock (which shows the course of the sun and moon with their eclipses), and the stone bridge over the Rhine, are well worth the observation of a traveller. That river is of great consequence to the inhabitants with regard to trade. E. Long. 8. 51. N. Lat. 47. 39.

The Canton of SCHAFFHAUSEN, in Swisserland, is bounded on the north and west by Suabia; on the east by the canton of Zurich, and the bishoprick of Con-

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stance; and on the south by the same, and by Thurgaw. It is 22 miles in length, and 10 in breadth; but produces all the necessaries of life, as wine, fish, wood, flax, horses, sheep, wool, black cattle, and deer. The principal town is of the same name.

SCHEDULE, a scroll of paper or parchment, annexed to a will, lease, or other deed; containing an inventory of goods, or some other matter omitted in the body of the deed.—The word is a diminutive of the Latin *scheda*, or Greek *σχίσμα*, a leaf or piece of paper.

SCHEELE (Charles-William), was born on the 19th of December 1742, at Stralsund, where his father kept a shop. When he was very young, he received the usual instructions of a private school; and was afterwards advanced to an academy. At a very early age he shewed a strong desire to follow the profession of an apothecary, and his father suffered him to gratify his inclinations. With Mr Bauch, an apothecary at Gottenburg, he passed his apprenticeship, which was completed in six years. He remained, however, some time longer at that place, and it was there that he so excellently laid the first foundations of his knowledge. Among the various books which he read, that treated of chemical subjects, Kunckel's Laboratory seems to have been his favourite. He used to repeat many of the experiments contained in that work privately in the night, when the rest of the family had retired to rest. A friend of Scheele's had remarked the progress which he had made in chemistry, and had asked him by what inducements he had been at first led to study a science in which he had gained such knowledge? Scheele returned the following answer: "The first cause, my friend, arose from yourself. Nearly at the beginning of my apprenticeship you advised me to read Neuman's Chemistry; from the perusal of which I became eager to make experiments myself; and I remember very well how I mixed together, in a conserve-glass, oil of cloves and fuming acid of nitre, which immediately took fire. I see also still before my eyes an unlucky experiment which I made with pyrophorus. Circumstances of this kind did but the more inflame my desire to repeat experiments." After Scheele's departure from Gottenburg, in the year 1765, he obtained a place with Kallstrom, an apothecary at Malmo. Two years afterwards he went from thence to Stockholm, and managed there the shop of Mr Scharenberg. In 1773, he changed this appointment for another at Upsal, under Mr Looek. Here he was fortunately situated; as, from his acquaintance with learned men, and from having free access to the University Laboratory, he had opportunities of increasing his knowledge. At this place also he happily commenced the friendship which subsisted between him and Bergman. During his residence at this place, his Royal Highness Prince Henry of Prussia, accompanied by the Duke of Sun-

derland, visited Upsal, and chose this opportunity to see the Academical Laboratory. Scheele was accordingly appointed by the University to exhibit some chemical experiments to them. This office he undertook, and shewed some of the most curious processes in chemistry. The two Princes asked him many questions, and expressed their approbation of the answers which he returned to them. The Duke asked him what countryman he was, and seemed to be much pleased when Scheele informed him that he was born at Stralsund. At their departure they told the professor, who was present, that they should esteem it a favour if he would permit the young man to have free access to the Laboratory, as often as he chose, to make experiments.

In the year 1777 Scheele was appointed by the Medical College to be apothecary at Koping. It was at that place that he soon shewed the world how great a man he was, and that no place or situation could confine his abilities. When he was at Stockholm he shewed his acuteness as a chemist, as he discovered there the new and wonderful acid contained in the sparry fluor. It has been confidently asserted, that Scheele was the first who discovered the nature of the aerial acid; and that whilst he was at Upsal he made many experiments to prove its properties. This circumstance might probably have furnished Bergman with the means of handling this subject more fully. At the same place he began the series of excellent experiments on that remarkable mineral substance, manganese; from which investigation he was led to make the very valuable and interesting discovery of the dephlogisticated marine acid. At the same time he first observed the ponderous earth.

At Koping he finished his dissertation on Air and Fire; a work which the celebrated Bergman most warmly recommended in the friendly preface which he wrote for it. The theory which Scheele endeavours to prove in this treatise is, that fire consists of pure air and phlogiston. According to more recent opinions (if inflammable air be phlogiston), water is composed of these two principles. Of these opinions we may say, in the words of Cicero, "*Opiniones tam variae sunt, tamque inter se dissidentes, ut alterum profectio fieri potest, ut eorum nulla, alterum certe non potest ut plus una, vera sit.*" The author's merit in this work, exclusive of the encomiums of Bergman, was sufficient to obtain the approbation of the public; as the ingenuity displayed in handling so delicate a subject, and the many new and valuable observations (A) which are dispersed through the treatise, justly entitled the author to that fame which his book procured him. It was spread abroad through every country, became soon out of print, was reprinted, and translated into many languages. The English translation is enriched with the notes of that accurate and truly philosophic genius Richard Kirwan, Esq.

Scheele now diligently employed himself in contributing to the Transactions of the Academy at Stockholm.

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(A) Scheele mentions in this work, in a cursory way, the decomposition of common salt by the calx of lead. Mr Turner, a gentleman who happily unites the skill of the manufacturer with the knowledge of the philosophic chemist, has also all the merit of this discovery, as he observed the same fact, without having been indebted to Scheele's hint on this subject. Mr Turner has done more; he has converted this discovery to some use in the arts; he produces mineral alkali for sale, arising from this decomposition; and from the lead which is united to the marine acid he forms the beautiful pigment called the *patent yellow*.

eele. He first pointed out a new way to prepare the salt of benzoïn. In the same year he discovered that arsenic, freed in a particular manner from phlogiston, partakes of all the properties of an acid, and has its peculiar affinities to other substances.

In a Dissertation on Flint, Clay, and Alum, he clearly overturned Beaumé's opinion of the identity of the siliceous and argillaceous earths. He published an Analysis of the Human Calculus. He shewed also a mode of preparing mercurius dulcis in the humid way, and improved the process of making the powder of Algaroth. He analysed the mineral substance called *molybdena*, or flexible black lead. He discovered a beautiful green pigment. He shewed us how to decompose the air of the atmosphere. He discovered that some neutral salts are decomposed by lime and iron. He decomposed plumbago, or the common black lead. He observed, with peculiar ingenuity, an acid in milk, which decomposes acetated alkali; and in his experiments on the sugar of milk, he discovered another acid, different in some respects from the above-mentioned acid and the common acid of sugar. He accomplished the decomposition of tungstein, the component parts of which were before unknown, and found in it a peculiar acid earth united to lime. He published an excellent dissertation on the different sorts of æther. He found out an easy way to preserve vinegar for many years. His investigation of the colouring matter in Prussian blue, the means he employed to separate it, and his discovery that alkali, sal ammoniac, and charcoal; mixed together, will produce it, are strong marks of his penetration and genius. He found out a peculiar sweet matter in expressed oils, after they have been boiled with litharge and water. He shewed how the acid of lemons may be obtained in crystals. He found the white powder in rhubarb, which Model thought to be selenite, and which amounts to one-seventh of the weight of the root, to be calcareous earth, united to the acid of sorrel. This suggested to him the examination of the acid of sorrel. He precipitated acetated lead with it, and decomposed the precipitate thus obtained by the vitriolic acid, and by this process he obtained the common acid of sugar; and by slowly dropping a solution of fixed alkali into a solution of the acid of sugar, he regenerated the acid of sorrel.—From his examination of the acids contained in fruits and berries, he found not one species of acid alone, viz. the acid of lemon, but another also, which he denominated the malaceous acid, from its being found in the greatest quantity in apples.

By the decomposition of Bergman's new metal (siderite) he shewed the truth of Meyer's and Klaproth's conjecture concerning it. He boiled the calx of siderite with alkali of tartar, and precipitated nitrated mercury by the middle salt which he obtained by this operation; the calx of mercury which was precipitated was found to be united to the acid of phosphorus; so that he demonstrates that this calx was phosphorated iron. He found also, that the native Prussian blue contained the same acid. He discovered by the same means, that the perlate acid, as it was called, was not an acid *sui generis*, but the phosphoric united to a small quantity of the mineral alkali. He suggested an improvement in the process for obtaining magnesia from Epsom salt; he advises the adding of an equal weight

of common salt to the Epsom salt, so that an equal weight of Glauber's salt may be obtained: but this will not succeed unless in the cold of winter. These are the valuable discoveries of this great philosopher, which are to be found in the Transactions of the Royal Society at Stockholm. Most of his essays have been published in French by Madame Picardet, and Mons. Morveau of Dijon. Dr Beddoes also has made a very valuable present to his countrymen of an English translation of a greater part of Scheele's dissertations, to which he has added some useful and ingenious notes. The following discoveries of Scheele are not, we believe, published with the rest. He shewed what that substance is, which has been generally called 'the earth of the fluor spar.' It is not produced unless the fluor acid meet with siliceous earth. It appears from Scheele's experiments to be a triple salt, consisting of flint, acid of fluor, and fixed alkali. Scheele proved also, that the fluor acid may be produced without any addition of the vitriolic or any mineral acid: the fluor is melted with fixed alkali, and the fluorated alkali is decomposed by acetated lead. If the precipitate be mixed with charcoal dust, and exposed in a retort to a strong heat, the lead will be revived, and the acid of fluor, which was united to it, will pass into the receiver possessed of all its usual properties. This seems to be an ingenious and unanswerable proof of its existence.

He observed, that no pyrophorus can be made unless an alkali be present; and the reason why it can be prepared from alum and coal is, that the common alum always contains a little alkali, which is added in order to make it chrySTALLIZE; for if this be separated from it, no pyrophorus can be procured from it. His last dissertation was his very valuable observations on the acid of the gallnut. Ehrhart, one of Scheele's most intimate friends, asserts, that he was the discoverer of both of the acids of sugar and tartar. We are also indebted to him for that masterpiece of chemical decomposition, the separation of the acid of phosphorus from bones. This appears from a letter which Scheele wrote to Gahn, who has generally had the reputation of this great discovery. This acid, which is so curious in the eye of the chemist, begins to draw the attention of the physician. It was first used in medicine, united to the mineral alkali, by the ingenious Dr Pearson. The value of this addition to the materia medica cannot be better evinced than from the increase of the demand for it, and the quantity of it which is now prepared and sold in London.

We may stamp the character of Scheele as a philosopher from his many and important discoveries. What concerns him as a man we are informed of by his friends, who affirm, that his moral character was irreproachable. From his outward appearance, you would not at first sight have judged him to be a man of extraordinary abilities; but there was a quickness in his eye, which, to an accurate observer, would point out the penetration of his mind. He mixed but little with the crowd of common acquaintance; for this he had neither time nor inclination, as, when his profession permitted him, he was for the most part employed in his experimental inquiries. But he had a soul for friendship; nor could even his philosophical pursuits withhold him from truly enjoying the society of those whom he could esteem and love. Before he adopted any opinion, or a particular theory, he considered it with the greatest attention; but

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when once his sentiments were fixed, he adhered to them, and defended them with resolution. Not but that he was ingenuous enough to suffer himself to be convinced by weighty objections; as he has shewn that he was open to conviction.

His chemical apparatus was neither neat nor convenient; his laboratory was small and confined; nor was he particular in regard to the vessels which he employed in his experiments, as often the first phial which came to hand was placed in his sand-heat: so that we may justly wonder how such discoveries, and such elegant experiments, could have been made under such unfavourable circumstances. He understood none of the modern languages except the German and Swedish; so that he had not the advantage of being benefited by the early intelligence of discoveries made by foreigners, but was forced to wait till the intelligence was conveyed to him in the slow and uncertain channel of translation. The important services which Scheele did to natural philosophy entitled him to universal reputation; and he obtained it: his name was well known by all Europe, and he was member of several learned academies and philosophical societies.

It was often wished that he would quit his retirement at Koping, and move in a larger sphere. It was suggested to him, that a place might be procured in England, which might afford him a good income and more leisure; and, indeed, latterly an offer was made to him of an annuity of 300*l.* if he would settle in this country. But death, alas! put an end to this project. For half a year before this melancholy event, his health had been declining, and he himself was sensible that he would not recover. On the 19th of May 1786, he was confined to his bed; on the 21st he bequeathed all of which he was possessed to his wife (who was the widow of his predecessor at Koping, and whom he had lately married); and on the same day he departed this life. So the world lost, in less than two years, Bergman and Scheele, of whom Sweden may justly boast; two philosophers, who were beloved and lamented by all their contemporaries, and whose memory posterity will never cease most gratefully to revere.

SCHEINER (Christopher), a German mathematician, astronomer, and Jesuit, eminent for being the first who discovered spots on the sun, was born at Schwaben in the territory of Middleheim in 1575. He first discovered spots on the sun's disk in 1611, and made observations on these phenomena at Rome, until at length reducing them to order, he published them in one vol. folio in 1630. He wrote also some smaller things relating to mathematics and philosophy; and died in 1690.

SCHELD, a river which rises on the confines of Picardy, and runs north-east by Cambray, Valenciennes, Tournay, Oudenarde, &c. and receiving the Lis at Ghent, runs east by Dendermond, and then north to Antwerp: below which city it divides into two branches, one called *the Wester-Scheld*, which separates Flanders from Zealand, and discharges itself into the sea near Flushing; and the other called *the Oster-Scheld*, which runs by Bergen-op-zoom, and afterwards between the islands Beveland and Schowen, and a little below falls into the sea.

SCHEMNITZ, a town of Upper Hungary, with three castles. It is famous for mines of silver and other

metals, as also for hot baths. Near it is a rock of a shining blue colour mixed with green, and some spots of yellow. E. Long. 19. 0. N. Lat. 48. 40.

SCHERARDIA, in botany; a genus of the monogynia order, belonging to the tetrandria class of plants. The corolla is monopetalous and funnel-shaped; there are two three-toothed seeds.

SCHETLAND. See SHETLAND.

SCHEUCHZERIA, in botany: A genus of the trigynia order, belonging to the hexandria class of plants; and in the natural method ranking under the fifth order, *Tripelatoideæ*. The calyx is sexpartite; there is no corolla, nor are there any styles; there are three inflated and monospermous capules.

SCHIECHS, or SCHECH, among the Arabs, is a name applied to their nobles. "Among the Bedouins," says Niebuhr, "it belongs to every noble, whether of the highest or the lowest order. Their nobles are very numerous, and compose in a manner the whole nation; the plebeians are invariably actuated and guided by the schiechs, who superintend and direct in every transaction. The schiechs, and their subjects, are born to the life of shepherds and soldiers. The greater tribes rear many camels, which they either sell to their neighbours, or employ them in the carriage of goods, or in military expeditions. The petty tribes keep flocks of sheep. Among those tribes which apply to agriculture, the schiechs live always in tents, and leave the culture of their grounds to their subjects, whose dwellings are wretched huts. Schiechs always ride on horses or dromedaries, inspecting the conduct of their subjects, visiting their friends, or hunting. Traversing the desert, where the horizon is wide as on the ocean, they perceive travellers at a distance. As travellers are seldom to be met with in those wild tracts, they easily discover such as pass that way, and are tempted to pillage them when they find their own party the strongest."

SCHINUS, in botany: A genus of the decandria order, belonging to the diœcia class of plants; and in the natural method ranking under the 43d order, *Dumoseæ*. The male calyx is quinquefid; the petals five. The female flower is the same as in the male; the berry tri-coccous.

SCHIRAS, or SCHIRAZ, a large and famous town of Persia, capital of Faristan, is three miles in length from east to west, but not so much in breadth. It is seated at the north-west end of a spacious plain surrounded with very high hills, under one of which the town stands. The houses are built of bricks dried in the sun; the roofs are flat and terraced. There are 15 handsome mosques, tiled with stones of a bluish green colour, and lined within with black polished marble. There are many large and beautiful gardens, surrounded with walls fourteen feet high, and four thick. They contain various kinds of very fine trees, with fruits almost of every kind, besides various beautiful flowers. The wines of Schiras are not only the best in Persia, but, as some think, in the whole world. The women are much addicted to gallantry, and Schiras is called an *earthly paradise* by some. The ruins of the famous Persepolis are 30 miles to the north-east of this place. E. Long. 56. 0. N. Lat. 29. 36.

SCHISM, (from the Greek, σχίσμα, *clisi*, *fissure*), in its general acceptation signifies *division* or *separation*; but is chiefly used in speaking of separations happening from

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from diversity of opinions among people of the same religion and faith.

Thus we say the *schism* of the ten tribes of Judah and Benjamin, the *schism* of the Persians from the Turks and other Mahometans, &c.

Among ecclesiastical authors, the great schism of the West is that which happened in the times of Clement VII. and Urban VI. which divided the church for 40 or 50 years, and was at length ended by the election of Martin V. at the council of Constance.

The Romanists number 34 schisms in their church. — They bestow the name *English schism* on the reformation of religion in this kingdom. Those of the church of England apply the term *schism* to the separation of the nonconformists, viz. the presbyterians, independents, and anabaptists, for a further reformation.

SCHISTUS, in mineralogy, a name given to several different kinds of stones, but more especially to some of the argillaceous kind; as,

1. The bluish purple schistus, schistus tegularis, or common roof-slate. This is so soft that it may be slightly scraped with the nail, and is of a very brittle lamellated texture, of the specific gravity of 2,876. It is fusible *per se* in a strong heat, and runs into a black scoria. By a chemical analysis it is found to consist of 26 parts of argillaceous earth, 46 of siliceous earth, 8 of magnesia, 4 of calcareous earth, and 14 of iron. The dark-blue slate, or schistus scriptorius, contains more magnesia and less iron than the common purple schistus, and effervesces more briskly with acids. Its specific gravity is 2,701.

2. The pyritaceous schistus is of a grey colour, brown, blue, or black; and capable of more or less decomposition by exposure to the air, according to the quantity of pyritous matter it contains and the state of the iron in it. When this last is in a semi-phlogisticated state it is easily decomposed; but very slowly, or not at all, if the calx is much dephlogisticated. The aluminous schistus belongs to this species.

3. The bituminous schistus is generally black, and of a lamellated texture, of various degrees of hardness, not giving fire with steel, but emitting a strong smell when heated, and sometimes without being heated. M. Magellan mentions a specimen which burns like coal, with a strong smell of mineral bitumen, but of a yellowish brown, or rather dark ash-colour, found in Yorkshire. — This kind of schistus does not show any white mark when scratched like the other schistus.

SCHMIEDELIA, in botany: A genus of the digynia order, belonging to the octandria class of plants. The calyx is diphyllous; the corolla tetrapetalous; the germina pedicellated, and longer than the flower.

SCHOENOBATES (from the Greek, *σχολιων*, a rope; and *βασις*, I walk), a name which the Greeks gave to their rope-dancers: by the Romans called *funambuli*. See ROPE-DANCER and FUNAMBULUS.

The *schenobates* were slaves whose masters made money of them, by entertaining the people with their feats of activity. *Mercurialis de arte gymnastica*, lib. III. gives us five figures of *schenobates* engraven after ancient stones.

SCHOENUS, in botany: A genus of the monogynia order, belonging to the triandria class of plants; and in the natural method ranking under the 3d order,

Calamaria. The glumes are paleaceous, univalved, and thickset; there is no corolla, and only one roundish seed between the glumes.

SCHOLASTIC, something belonging to the schools. See SCHOOL.

SCHOLASTIC Divinity, is that part or species of divinity which clears and discusses questions by reason and arguments; in which sense it stands, in some measure, opposed to *positive divinity*, which is founded on the authority of fathers, councils &c. The school-divinity is now fallen into contempt; and is scarce regarded anywhere but in some of the universities, where they are still by their charters obliged to teach it.

SCHOLIAST, or COMMENTATOR, a grammarian who writes *scholia*, that is, notes, glosses, &c. upon ancient authors who have written in the learned languages. See the next article.

SCHOLIUM, a note, annotation, or remark, occasionally made on some passage, proposition, or the like. This term is much used in geometry and other parts of mathematics, where, after demonstrating a proposition, it is customary to point out how it might be done some other way, or to give some advice or precaution in order to prevent mistakes, or add some particular use or application thereof.

SCHOMBERG (Frederick-Armand duke of), a distinguished officer, sprung from an illustrious family in Germany, and the son of count Schomberg by an English lady, daughter of lord Dudley, was born in 1608. He was initiated into the military life under Frederick-Henry prince of Orange, and afterwards served under his son William II. of Orange, who highly esteemed him. He then repaired to the court of France, where his reputation was so well known, that he obtained the government of Gravelines, of Furnes, and the surrounding countries. He was reckoned inferior to no general in that kingdom except marshal Turenne and the prince of Condé; men of such exalted eminence that it was no disgrace to acknowledge their superiority. The French court thinking it necessary to diminish the power of Spain, sent Schomberg to the assistance of the Portuguese, who were engaged in a war with that country respecting the succession to their throne. — Schomberg's military talents gave a turn to the war in favour of his allies. The court of Spain was obliged to solicit for peace in 1668, and to acknowledge the house of Braganza as the just heirs to the throne of Portugal. For his great services he was created count Mentola in Portugal; and a pension of 5000 l. was bestowed upon him, with the reversion to his heirs.

In 1773 he came over to England to command the army; but the English at that time being disgusted with the French nation, Schomberg was suspected of coming over with a design to corrupt the army, and bring it under French discipline. He therefore found it necessary to return to France, which he soon left, and went to the Netherlands. In the month of June 1676, he forced the prince of Orange to raise the siege of Maastricht; and it is said he was then raised to the rank of marshal of France. But the French *Dictionnaire Historique*, whose information on a point of this nature ought to be authentic, says, that he was invested with this honour the same year in which he took the fortress

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fortress of Bellegarde from the Spaniards while serving in Portugal.

Upon the revocation of the edict of Nantes, when the persecution commenced against the Protestants, Schomberg, who was of that persuasion, requested leave to retire into his own country. This request was refused; but he was permitted to take refuge in Portugal, where he had reason to expect he would be kindly received on account of past services. But the religious zeal of the Portuguese, though it did not prevent them from accepting assistance from a heretic when their kingdom was threatened with subversion, could not permit them to give him shelter when he came for protection. The inquisition interfered, and obliged the king to send him away. He then went to Holland by the way of England. Having accepted an invitation from the elector of Brandenburg, he was invested with the government of Ducal Prussia, and appointed commander in chief of the elector's forces. When the prince of Orange failed to England to take possession of the crown which his father-in-law James II. had abdicated, Schomberg obtained permission from the elector of Brandenburg to accompany him. He is supposed to have been the author of an ingenious stratagem which the prince employed after his arrival in London to discover the sentiments of the people respecting the revolution. The stratagem was, to spread an alarm over the country that the Irish were approaching with fire and sword. When the prince was established on the throne of England, Schomberg was appointed commander in chief of the forces and master of the ordnance. In April 1689 he was made knight of the garter, and naturalized by act of Parliament; and in May following was created a baron, earl, marquis, and duke of the kingdom of England, by the name and title of baron Teyss, earl of Brentford, marquis of Harwich, and duke of Schomberg. The House of Commons voted to him L. 100,000 as a reward for his services. Of this he only received a small part; but after his death a pension of L. 5000 a-year was bestowed upon his son.

In August 1689 he was sent to Ireland to reduce that kingdom to obedience. When he arrived, he found himself at the head of an army consisting only of 12,000 foot and 2000 horse, while king James commanded an army three times more numerous. Schomberg thought it dangerous to engage with so superior a force, and being disappointed in his promised supplies from England, judged it prudent to remain on the defensive. He therefore posted himself at Dundalk, about five or six miles distance from James, who was encamped at Ardee. For six weeks he remained in this position, without attempting to give battle, while from the wetness of the season he lost nearly the half of his army. Schomberg was much blamed for not coming to action; but some excellent judges admired his conduct as a display of great military talents. Had he risked an engagement, and been defeated, Ireland would have been lost. At the famous battle of the Boyne, fought on the 1st July 1690, which decided the fate of James, Schomberg passed the river at the head of his cavalry, defeated eight squadrons of the enemy, and broke the Irish infantry. When the French Protestants lost their commander, Schomberg went to rally and lead them on to charge. While thus engaged, a party of king James's guards, which had been separated from the rest, passed Schom-

berg, in attempting to rejoin their own army. They attacked him with great fury, and gave him two wounds in the head. As the wounds were not dangerous, he might soon have recovered from them; but the French Protestants, perhaps thinking their general was killed, immediately fired upon the guards, and shot him dead on the spot. He was buried in St Patrick's cathedral.

Bishop Burnet says, Schomberg was "a calm man, of great application and conduct, and thought much better than he spoke; of true judgment, of exact probity, and of a humble and obliging temper."

SCHOOL, a public place, wherein the languages, the arts, or sciences, are taught. Thus we say, a grammar school, a writing school, a school of natural philosophy, &c.—The word is formed from the Latin *schola*, which, according to Du Cange, signifies discipline and correction; he adds, that it was anciently used, in general, for all places where several persons met together, either to study, to converse, or do any other matter. Accordingly, there were *schola palatina*, being the several posts wherein the emperor's guards were placed; *schola scutiariorum*, *schola gentium*, &c. At length the term passed also to civil magistrates; and accordingly in the code we meet with *schola eburnulariorum*, *schola agentium*, &c.; and even to ecclesiastics, as *schola cantorum*, *schola sacerdotum*, &c.

The Hebrews were always very diligent to teach and study the laws that they had received from Moses. The father of the family studied and taught them in his own family. The Rabbins taught them in the temple, in the synagogues, and in the academies. They pretend, that even before the deluge there were schools for knowledge and piety, of which the patriarchs had the direction.—They place Adam at their head, then Enoch, and lastly Noah. Melchisedec, as they say, kept a school in the city of Kajrath-sepher, otherwise Hebron, in Palestine. Abraham, who had been instructed by Heber, taught in Chaldea and in Egypt. From him the Egyptians learned astronomy and arithmetic. Jacob succeeded Abraham in the office of teaching. The scripture says, he was "a plain man dwelling in tents;" which, according to the Chaldee paraphrast, is, "that he was a perfect man, and a minister of the house of doctrine."

All this, indeed, must be very precarious and uncertain. It cannot be doubted but that Moses, Aaron, and the elders of Israel, instructed the people in the wilderness, and that many good Israelites were very industrious to instruct their families in the fear of God. But all this does not prove to us that there were any such schools as we are now inquiring after. Under Joshua we see a kind of academy of the prophets, where the children of the prophets, that is, their disciples, lived in the exercise of a retired and austere life, in study, in the meditation and reading of the law of God. There were schools of the prophets at Naioth in Ramah; 1 Sam. xix. 12, 20, &c. See the article PROPHET.

These schools, or societies of the prophets, were succeeded by the synagogues. See the article SYNAGOGUE.

Charity-Schools are those schools which are set apart by public contributions or private donations for the instruction of poor children, who could not otherwise enjoy the benefits of education. In no country are these

these more numerous than in Great Britain, where charity and benevolence are characteristic of the nation at large. The following is a summary view of the number of charity-schools in Great Britain and Ireland, according to the best information at present, 1795.

	Schools.	Boys.	Girls.
At London -	182	4442	2870
In other parts of South Britain, -	1329	19506	3915
In North Britain, by the account published in 1786, -	135	5187	2618
In Ireland, for teaching to read and write only, -	168	2406	600
In ditto, erected pursuant to his majesty's charter, and encouraged by his bounty of L. 1000 per annum, for instructing, employing, and wholly maintaining the children, exclusive of the Dublin work-house school, -	42	1935	—
Total of schools, &c.	1856	33476	10003

Sunday-Schools are another species of charity-schools lately instituted, and now pretty common in Great Britain. The institution is evidently of the first importance; and if properly encouraged must have a very favourable effect on the morals of the people, as it tends not only to preserve the children of the poor from spending Sunday in idleness, and of consequence in dissipation and vice, but enables them to lay in for the conduct and comfort of their future life a stock of useful knowledge and virtuous principles, which, if neglected in early life, will seldom be sought for or obtained amidst the hurry of business and the cares and temptations of the world.

The excellent founder of Sunday-schools was Mr Raikes, a gentleman of Gloucestershire, who, together with Mr Stock, a clergyman in the same county, and who, we believe, was equally instrumental in the business with Mr Raikes, shewed the example, and convinced many of the utility of the plan. From Gloucestershire the institution was quickly adopted in every county and almost every town and parish of the kingdom; and we have only further to remark on a plan so generally known, so much approved, and so evidently proper, that we hope men of eminence and weight will always be found sufficiently numerous and willing to bestow their time and countenance in promoting it to the utmost of their power.

SCHOONER, in sea-language, a small vessel with two masts, whose main-sail and fore-sail are suspended from gaffs, reaching from the mast towards the stern, and stretched out below by booms, whose foremost ends are hooked to an iron, which clasps the mast so as to turn therein as upon an axis, when the after-ends are swung from one side of the vessel to the other.

SCHORL, a precious stone of the second order, of which the varieties are, *Siberian*, ruby-coloured, reddish, green, brown, blue; and black; *mother of emerald*, dark green; *lapis crucifer*, or the *cross stone*; *bar schorl*; *horn blend*, black, green, or blue; *Cianite*, blue schorl; *Thumstein*; *Laxman's quadrangular schorl*.

Transparent schorl is chrystallized in polygonal prisms, generally with four, six, or nine sides; some of them are so fine as to pass for gems of the first order, especially for the emerald. In the semitransparent schorls there are likewise some of great beauty, as the ruby-coloured, lately discovered in Siberia by counsellor Herman, in a bed of reddish argilla, mixed with fragments of felt spath, quartz, and mica, on a low granite mountain. The bed of argilla is evidently produced by the decomposition of granite; which operation Herman supposes must have set at liberty the ruby schorl formerly pent up in the chinks or fissures of the decomposed part of the mountain. The discovery is quite new, no such species being before known, as it is as hard as the first order of precious stones, the diamond excepted, takes a fine polish, and equals in colour the oriental ruby, though not in transparency.

Its structure is made up of fine cylindric columns, like needles collected into bundles or tresses, lying one on another in different directions, whilst each individual column is made up of fine plates or laminæ, like the gems. It is fusible *per se* into a white transparent glass, and melts imperfectly with borax when calcined, as it does with microcosmic salt and mineral alkali, into a small vitreous globe, with little spots of a white enamel colour. Acids have no effect upon it, even when calcined. Lastly, it loses its colour in the fire, after having first turned blue. The mother of emeralds is likewise a semitransparent schorl, in the opinion of some able naturalists, although Mr Born asserts it to be a jade, we know not upon what authority.

The structure of the semitransparent schorls, and some of the transparent that are not so perfectly diaphanous as to conceal their texture, is obscurely sparry; but that of the opaque is either filamentous, like asbestos, or hard and brittle like threads of glass, or it is composed of scales. Of this last kind is that called *horn blend*, which is generally green or black; but there is a beautiful variety of it found on the mount St Gothard, in Switzerland, of a fine sky-blue colour covered with silver talk. Bar schorl has been found on the Carpathian mountains chrystallized in prisms. Lapis crucifer, or the cross stone, is found sometimes near Brazil in Switzerland, and there named Tauffstein, or christening stone; but oftener at Thum in Saxony, and therefore named there Thumstein. It is a schorl in form of a cross: that of Brazil consists of two hexagonal chrystals. The exact crystallization of the other is unknown to us.

Most countries produce schorls. Russia is particularly rich in schorls. It is even difficult to point out all the different places of the empire which produce them; but we shall take notice of those most remarkable, particularly new discoveries. The ruby-coloured schorl mentioned above was found by Mr Herman at Sarapoulsky, a village in the government of Perm, ten versts from Mourminsky Slabode, in Siberia. The Siberian inspector, Mr Laxman, has lately discovered in the mountain Alpestria, on the river Sleudenka near the lake Baikal, the following new schorls. First, a green transparent schorl, of so brittle a nature as not to bear carriage without breaking into small pieces truncated. Pallas is positive in declaring this dark green schorl a hyacinth. This last has often some of the small yellowish white garnets sticking in it, described in the article

Schotia
||
Schurmar

cle GARNET, where an account will be found of the species of matrix that contains them all. Schorls are likewise found in the mountains and mines of Nisefga, Krasnavolok, and Sondala, as likewise between the Onega Lake and White Sea. Black schorl is likewise found near the White Sea, and in the Altai, Ural, and Daurian mountains.

None of the transparent schorls have been found in Scotland as far as we have heard; but many varieties of the opaque kinds have been found in various places, particularly in the island of Arran, where there is a bed of greenish horn-like schorl of immense extent near the harbour of Lamlash.

Fine specimens of schorl are dear; the ruby schorl from Siberia, 25 to 50 rubles a ring stone; the green, when fine, from 15 to 30. The high price of the ruby schorl is owing to its novelty and rarity; and of the green, is owing to its passing for an emerald. The specific gravity of schorl is 3.6.

SCHOTIA, in botany: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking under the 33d order, *Lomentaceae*. The calyx is semiquinquefid; the corolla has five petals, which are equal; the tube is turbinate, carnosous, and persistent. The legumen pedicellated, and contains two seeds; there is only one species, viz. the speciosa, or African lignum vitae.

SCHREBERA, in botany: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking with those of which the order is doubtful. The calyx is quinquepartite; the corolla funnel-shaped, with the filaments in the throat, and having each a scale at the base.

SCHREVELIUS (Cornelius), a laborious Dutch critic and writer, who has given the public some editions of the ancient authors more elegant than correct: his Greek Lexicon is esteemed the best of all his works. He died in 1667.

SCHULTENS (Albert), professor of Hebrew and of the eastern languages at Leyden, and one of the most learned men of the 18th century, was born at Groningen, where he studied till the year 1706, and from thence continued his studies at Leyden and Utrecht. Schultens at length applied himself to the study of Arabic books, both printed and in manuscript; in which he made great progress. A short time after he became minister of Wassenar, and two years after professor of the eastern tongues at Franeker. At length he was invited to Leyden, where he taught Hebrew and the eastern languages with extraordinary reputation till his death, which happened in 1750. He wrote many learned works; the principal of which are, 1. A Commentary on Job, 2 vols 4to. 2. A Commentary on the Proverbs. 3. *Vetus & regia via Hebraizandi*. 4. *Animadversiones philologicae & criticae ad varia loca Veteris Testamenti*. 6. An excellent Hebrew grammar, &c. Schultens discovered in all his works sound criticism and much learning. He maintained against Goussset and Driessen, that in order to have a perfect knowledge of Hebrew, it is necessary to join with it, not only the Chaldee and Syriac, but more particularly the Arabic.

SCHURMAN (Anna-Maria), a most extraordinary German lady. Her natural genius discovered itself at six years of age, when she cut all sorts of figures in

paper with her scissars without a pattern. At eight, she learned, in a few days, to draw flowers in a very agreeable manner. At ten, she took but three hours to learn embroidery. Afterwards she was taught music, vocal and instrumental; painting, sculpture, and engraving; in all of which she succeeded admirably. She excelled in miniature-painting, and in cutting portraits upon glass with a diamond. Hebrew, Greek, and Latin, were so familiar to her, that the most learned men were astonished at it. She spoke French, Italian, and English, fluently. Her hand-writing, in almost all languages, was so inimitable, that the curious preserved specimens of it in their cabinets. But all this extent of learning and uncommon penetration could not protect her from falling into the errors of Labadie, the famous French enthusiast, who had been banished France for his extravagant tenets and conduct. To this man she entirely attached herself, and accompanied him wherever he went; and even attended him in his last illness at Altena in Holstein. Her works, consisting of *De vite humane termino*, and *Dissertatio de ingenii muliebris ad doctrinam et meliores literas aptitudine*, and her Letters to her learned correspondents, were printed at Leyden in 1648; but enlarged in the edition of Utrecht, 1662, in 12mo, under the following title: *A. M. Schurman Opuscula Hebraea, Graeca, Latina, Gallica, Prosaica, et Metrica*. She published likewise at Altena, in Latin, A Defence of her attachment to Labadie, while she was with him in 1673; not worth reading. She was born at Cologne in 1607, but resided chiefly in Holland, and died in Friesland in 1678.

SCHALBEA, in botany; a genus of the angiospermia order, belonging to the didynamia class of plants. The calyx is quadrid, with a superior lobe; the lowermost longest, and emarginated.

SCHWARTS (Christopher), an eminent history-painter, born at Ingolstadt in 1550, who was distinguished by the appellation of the *German Raphael*. He learned the first principles of the art in his own country, but finished his studies at Venice; when he not only made the works of Titian his models, but had the advantage of receiving some personal instructions from that illustrious master. His performances were soon in the highest esteem, as his manner of painting was very different from what the Germans had been accustomed to before that time: he was, therefore, invited by the elector of Bavaria to his court, and appointed his principal painter. He died in 1594; and his most capital works, as well in fresco as in oil, are in the palace at Munich, and in the churches and convents.

SCHWARTENBURG, a town and castle of Germany, and circle of Upper Saxony, in the landgraviate of Thuringia, and capital of a county of the same name belonging to a prince of the house of Saxony. It is seated on the river Schwartz, 20 miles south-east of Erford, and 35 north of Cullembach. E. Long. 11. 27. N. Lat. 50. 45.

SCHWARTZEMBERG, a town of Germany, in the circle of Franconia, and capital of a principality of the same name. The castle is seated on the river Lec, 5 miles north-west of Nuremberg, and 20 east of Wertzburg, subject to its own prince. E. Long. 10. 27. N. Lat. 49. 43.

SCHWEI-

SCHWEIDNITZ, a strong town of Germany, in Silesia, and capital of a province of the same name, with a castle. It is the handsomest town of Silesia, next to Breslaw. The streets are large, the church fine, and the houses well built. The fortifications are not very considerable, and the royal palace is turned into a convent. All the magistrates are Roman Catholics; but most of the inhabitants are Protestants, who have a church without the town, as also a public school and bells. It is seated on an eminence on the river Weistritz, 27 miles south-east of Lignitz, and 22 south-west of Breslaw. E. Long. 16. 48. N. Lat. 50. 46.

SCHWEINFURT, a very strong, free, and imperial town of Germany, in Franconia, with a magnificent palace, where the senators meet, who are 12 in number. The environs are rich in cattle, corn, and wine; the inhabitants are Protestants, and not very rich. However, they carry on a large trade in woollen and linen cloth, goose-quills, and feathers. It is seated on the river Main, 27 miles north-east of Wirtzburg, and 22 west of Bamberg. E. Long. 10. 25. N. Lat. 50. 4.

SCHWENKFELDIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking with those that are doubtful. The calyx is quinquefid; the corolla funnel-shaped; the stigma parted into five; the berry quinquelocular, with a number of seeds. Of this there are three species, viz. 1. Cinerea; 2. Aspera; 3. Hirta. The two first are natives of Guiana, the other of Jamaica. The leaves of all of them are remarkably rough, and stick to the fingers or clothes.

SCHWENKIA, in botany; a genus of the monogynia order, belonging to the diandria class of plants. The corolla is almost equal, plaited at the throat, and glandulous; there are three barren stamens; the capsule bilocular and polyspermous.

SCHWINBURG, a town of Denmark, on the eastern coast of the island of Fionia, over-against the islands of Arroa and Langeland. E. Long. 10. 55. N. Lat. 55. 8.

SCHWITZ, or **SWITZ**, a canton of Switzerland, which gives name to them all. It is bounded on the west by the lake of the four cantons, on the south by the canton of Uri, on the east by that of Glaris, and on the north by those of Zurich and Zug. Its principal riches consist in cattle, and the capital town is of the same name. This is a large, handsome place, seated near the lake of the four cantons, in a pleasant country among the mountains. E. Long. 8. 41. N. Lat. 47. 2.

SCIACCA, anciently called *Therma Selinuntia*, in Sicily, derives its present denomination from the Arabic word *Scheich*. It is a very ancient place, being mentioned in the account of the wars between the Greeks and Carthaginians, to the latter of whom it belonged. It is defended by ancient walls and the castle of Luna. It stands upon a very steep rock, hanging over the sea, and excavated in every direction into prodigious magazines, where the corn of the neighbouring territory is deposited for exportation; there is no harbour, but a small bay formed by a wooden pier, where lighters lie to load the corn which they carry out about a mile to ships to anchor.

The town is irregularly but substantially built, and

contains 13,000 inhabitants, though Amico's *Lexicon Topographicum* says the last enumeration found only 9484. His accounts do not take in ecclesiastics, and several denominations of lay persons.

SCIÆNA, in ichthyology, a genus belonging to the order of thoracici. The membrane of the gills has six rays; the opercula and whole head are scaly. There are five species.

SCIATICA, the **HIP-GOUT**. See **MEDICINE**, n° 207.

SCIENCE, in philosophy, denotes any doctrines deduced from self-evident principles.

Sciences may be properly divided as follows, 1. The knowledge of things, their constitutions, properties, and operations: this, in a little more enlarged sense of the word, may be called φυσικη, or *natural philosophy*; the end of which is speculative truth. See **PHILOSOPHY** and **PHYSICS**.—2. The skill of rightly applying these powers, πρακτικη: The most considerable under this head is ethics, which is the seeking out those rules and measures of human actions that lead to happiness, and the means to practise them (see **MORAL PHILOSOPHY**); and the next is mechanics, or the application of the powers of natural agents to the uses of life (see **MECHANICS**).—3. The doctrine of signs, σημειωτικη; the most usual of which being words, it is aptly enough termed *logic*. See **LOGIC**.

This, says Mr Locke, seems to be the most general, as well as natural, division of the objects of our understanding. For a man can employ his thoughts about nothing but either the contemplation of things themselves for the discovery of truth; or about the things in his own power, which are his actions, for the attainment of his own ends; or the signs the mind makes use of both in the one and the other, and the right ordering of them for its clearer information. All which three, viz. things as they are in themselves knowable, actions as they depend on us in order to happiness, and the right use of signs in order to knowledge; being *toto calo* different, they seem to be the three great provinces of the intellectual world, wholly separate and distinct one from another.

SCILLA, the **SQUILL**, in botany: A genus of the monogynia order, belonging to the hexandria class of plants; and in the natural method ranking under the 10th order, *Coronaria*. The corolla is hexapetalous and deciduous; the filaments filiform.

The most remarkable species is the *maritima*, or sea-onion, whose roots are used in medicine. Of this there are two sorts, one with a red, and the other with a white root; which are supposed to be accidental varieties, but the white are generally preferred for medicinal use. The roots are large, somewhat oval-shaped, composed of many coats lying over each other like onions; and at the bottom come out several fibres. From the middle of the root arise several shining leaves, which continue green all the winter, and decay in the spring. Then the flower-stalk comes out, which rises two feet high, and is naked half-way, terminating in a pyramidal thyrsus of flowers, which are white, composed of six petals, which spread open like the points of a star. This grows naturally on the sea-shores, and in the ditches, where the salt-water naturally flows with the tide, in most of the warm parts of Europe, so cannot be propagated in gardens; the frost in winter always

Sciæna
Scilla.

Scilly.

ways destroying the roots, and for want of salt-water they do not thrive in summer. Sometimes the roots which are bought for use put forth their stems and produce flowers, as they lie in the druggists shops. — This root is very nauseous to the taste, intensely bitter, and so acrimonious, that it ulcerates the skin if much handled. Taken internally, it powerfully stimulates the solids, and promotes urine, sweat, and expectoration. If the dose is considerable, it proves emetic, and sometimes purgative. The principal use of this medicine is where the primæ viæ abound with mucous matter, and the lungs are oppressed by tenacious phlegm. It has been recommended in hydropic cases, taken in powder, from four to ten grains in a dose, mixed with a double quantity of nitre. The most commodious mode of exhibiting this root is as a bolus or pill. Liquid forms are too disagreeable to most people; though this may be remedied in some degree by the addition of some aromatic distilled waters. It yields the whole of its virtues to aqueous and vinous menstrua, and likewise to vegetable acids.

SCILLY, or SILLEY, a cluster of small islands and rocks, situated in the Atlantic Ocean, in W. Long. 7°. N. Lat. 50°.

These islands were first called *Cassiterides*, or the *Tin Isles*, from their being rich in that metal. The common opinion is, that this is a Greek appellation; which in the most obvious sense is true: But as the Phœnicians were familiar with the metal, and with the country that produced it, before the Greeks knew any thing of either, it is very likely they introduced the names of both from their own language. Strabo says these islands were ten in number, lying close together, of which only one was uninhabited: the people led an erratic life, lived upon the produce of their cattle, wore an under-garment which reached down to their ankles, and over that another, both of the same colour, which was black, girt round a little below the breast with a girdle, and walked with staves in their hands. The riches of these islands were tin and lead, which, with the skins of their cattle, they exchanged with foreign merchants, that is, the Phœnicians from Cadiz, for earthen-ware, salt, and utensils made of brass. An author of as great or greater antiquity, seems to include a part at least of Cornwall amongst these islands; or rather he suggests, that they were not perfect islands except at full sea, but that at ebb the inhabitants passed from one to another upon the sands, and that they even transported their tin in large square blocks upon carriages from one island to another. He farther takes notice, that such as inhabited about *Belerium* (the Land's End) were in their conversation with strangers remarkably civil and courteous. Other ancient writers style these islands *Hesperides*, from their western situation, and *Oestrymnides*, asserting that the land was extremely fertile, as well as full of mines; and that the people, though very brave, were entirely addicted to commerce, and boldly passed the seas in their leather boats.

The Romans were exceedingly desirous of having a share in this commerce, which the Phœnicians as carefully laboured to prevent, by concealing their navigation to these islands as much as it was in their power. At length, however, the Romans prevailed; and Publius Crassus coming thither, was so well pleased with the

Scilly. industry and manners of the people, that he taught them various improvements, as well in working their mines, which till that time were but shallow, as in carrying their own merchandise to different markets. There is no room to doubt that they followed the fate of the rest of Britain, and particularly of Cornwall, in becoming subject to the Roman empire. We find them called in the Itinerary of Antoninus, *Sigdes*; by Sulpitius, *Sillene*; and by Solinus they are termed *Silures*. All we know of them during this period is, that their tin trade continued, and that sometimes state-prisoners were exiled, or, to use the Roman phrase, relegated hither as well as to other islands.

When the legions were withdrawn, and Britain with its dependencies left in the power of the natives, there is no reason to question that these islands shared the same lot with the rest. As to the appellation which from this period prevailed, the ordinary way of writing it is *Scilly*; in records we commonly find it spelt *Silly*, *Silley*, or *Sulley*; but we are told the old British appellation was *Sulleb*, or *Sylleb*, which signifies rocks consecrated to the sun. We have not the least notice of any thing that regards them from the fifth to the tenth century. It is, however, with much appearance of truth conjectured, that some time within this space they were in a great measure destroyed by an earthquake, attended with a sinking of the earth, by which most of their lowlands, and of course the greatest part of their improvements, were covered by the sea, and those rich mines of tin which had rendered them so famous swallowed up in the deep. They have a tradition in Cornwall, that a very extensive tract of country called the *Lioness*, in the old Cornish *Lethoufrow*, supposed to lie between that country and Scilly, was lost in that manner; and there are many concurrent circumstances which render this probable. In reference to these islands, the case is still stronger; for at low ebbs their stone-inclosures are still visible from almost all the isles, and thereby afford an ocular demonstration that they were formerly of far greater extent, and that in remoter ages their inhabitants must have been very numerous, and at the same time very industrious. This sufficiently proves the fact, that by such an earthquake they were destroyed; and that it happened at some period of time within those limits that have been assigned, appears from our hearing nothing more of their tin trade, and from our having no notice of it at all in any of our ancient chronicles, which, if it had fallen out later, from their known attention to extraordinary events, must certainly have happened.

It is generally supposed, and with great appearance of truth, that king Athelstan, after having overcome a very powerful confederacy formed against him, and having reduced Exeter, and driven the Britons beyond the river Tamar, which he made the boundary of their Cornish dominions, passed over into these islands, (then surely in a better state than now, or they would not have been objects of his vengeance), and reduced them likewise. History does not inform us, that the Dares ever fixed themselves in these islands; but as their method of fortifying is very well known, it has been conjectured that the Giant's Castle in the isle of St Mary was erected by them; and indeed, if we consider the convenient situation of these islands, and the trade

trade of piracy which that nation carried on, there seems to be nothing improbable in that conjecture. It is more certain that there were churches erected in these isles, and that there were in them also many monks and hermits, before the conquest.

The fertility of the islands is much insisted upon in all the accounts; and it is expressly said of St Mary's, that it bears exceeding good corn, inasmuch that if men did but cast corn where swine had rooted, it would come up. There is mention made of a breed of wild swine, and the inhabitants had great plenty of fowl and fish. But notwithstanding the fertility of the country, and the many commodities that men had or might have there, it was nevertheless but thinly peopled; and the reason assigned is, because they were liable to be frequently spoiled by French or Spanish pirates. In Leland's time, one Mr Davers of Wiltshire, and Mr Whittington of Gloucestershire, were proprietors of Scilly, and drew from thence, in rents and commodities, about 40 marks a-year.

The inhabitants at that juncture, and long before, appear to have carried on a small trade in dried skate and other fish to Bretagne, with which they purchased salt, canvas, and other necessaries. This seems to be the remains of a very old kind of commerce, since, for many ages, the people of that country, those of the Scilly isles, and the people of Cornwall, looked upon themselves as countrymen, being in truth no other than remnants of the ancient Britons, who, when driven out by the Saxons, took refuge in those islands, and in that part of France which had before been called *Armorica*, and from hence styled *Bretagne*, *Brittany*, or *Little Britain*, and the people *Bretons*. This, in all probability, was a great relief to those who dwelt in those isles; who, during the long civil war between the houses of York and Lancaster, had their intercourse with England so much interrupted, that if it had not been for this commerce with their neighbours on the French coast, they might have been driven to the last distress.

The Scilly, or Silley islands, lie due west from the Lizard about 17 leagues; west and by south from the old Land's End, next Mount's Bay, at the distance of 10 leagues; and from the western Land's End, they lie west-south-west, at the distance of something more than nine leagues. There are five of them inhabited; and that called *Samson* has one family in it. The largest of these is St Mary's, which lies in the north latitude of 49 degrees 55 minutes, and in the longitude of 6 degrees 40 minutes west from Greenwich. It is two miles and a half in length, about one and a half in breadth, and between nine and ten miles in compass. On the west side there projects an isthmus. Beyond this there is a peninsula, which is very high; and upon which stands Star Castle, built in 1593, with some outworks and batteries. On these there are upwards of three-score pieces of cannon mounted; and for the defence of which there is a garrison of an entire company, with a master-gunner and six other-gunners. In the magazine there are arms for 300 islanders, who, when summoned, are bound to march into the fortress. Underneath the castle barracks and lines stands Hugh Town, very improperly built, as lying so low as to be subject to inundations. A mile within land stands Church Town, so denominated from their place of wor-

ship; it consists of a few houses only, with a court-house. About two furlongs east of this lies the Old Town, where there are more houses, and some of them very convenient dwellings. The number of inhabitants in this island is about 600 or 700; and it produces to the lord proprietor 300*l.* per annum.

Trescow lies directly north from St Mary's, at the distance of two miles. It was formerly styled *St Nicholas's island*; and was at least as large as St Mary's, though at present about half the size. The remains of the abbey are yet visible, the situation well chosen, with a fine basin of fresh water before it, half a mile long and a furlong wide, with an ever-green bank high enough to keep out the sea, and serving at once to preserve the pond, and shelter the abbey. In this pond there are most excellent eels, and the lands lying round it are by far the best in those islands. There are about half a score stone houses, with a church, which are called *Dolphin Town*; an old castle built in the reign of Henry VIII. called *Oliver's Castle*; and a new block-house, raised out of the ruins of that castle, which is of far greater use. This island is particularly noted for producing plenty of the finest lamphire, and the only tin works that are now visible are found here. There are upon it at present about 40 families, who are very industrious, and spin more wool than in St Mary's. Its annual value is computed at 80*l.* a-year.

A mile to the east of *Trescow*, and about two miles from the most northern part of St Mary's, lies the isle of *St Martin's*, not much inferior in size to that of *Trescow*. It very plainly appears to have been formerly extremely well cultivated; notwithstanding which it was entirely deserted, till within somewhat less than a century ago, that Mr Thomas Ekines, a considerable merchant, engaged some people to settle there. He likewise caused to be erected a hollow tower twenty feet in height, with a spire of as many feet more; which being neatly covered with lime, serves as a day-mark for directing ships crossing the channel or coming into Scilly. *St Martin's* produces some corn, affords the best pasture in these islands, nourishes a great number of sheep, and has upon it 17 families, who pretend to have the secret of burning the best kelp, and are extremely attached to their own island. As a proof of this, it is observable, that though some of the inhabitants rent lands in St Mary's, yet they continue to reside here, going thither only occasionally.

St Agnes, which is also called the *Light-house Island*, lies near three miles south-west of St Mary's; and is, though a very little, a very well cultivated island, fruitful in corn and grass. The only inconvenience to which the people who live in it are subject, is the want of good water, as their capital advantage consists in having several good coves or small ports, where boats may lie with safety; which, however, are not much used. The light-house is the principal ornament and great support of the island, which stands on the most elevated ground, built with stone from the foundation to the lantern, which is fifty-one feet high, the gallery four, the sash-lights eleven feet and a half high, three feet two inches wide, and sixteen in number. The floor of the lantern is of brick, upon which stands a substantial iron grate, square, barred on every side, with one great chimney in the canopy-roof, and several lesser ones to let out the smoke, and a large pair of smith's bellows

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are so fixed as to be easily used whenever there is occasion. Upon the whole, it is a noble and commodious structure; and being plastered white, is a useful day-mark to all ships coming from the southward. The keeper of this light-house has a salary from the Trinity-house at Deptford of 40*l.* a-year, with a dwelling-house and ground for a garden. His assistant has 20*l.* a-year. It is supplied with coals by an annual ship; and the carriage of these coals from the sea-side to the light-house is looked on as a considerable benefit to the poor inhabitants. They have a neat little church, built by the Godolphin family. There are at present 50 households in the island, which yield the proprietor 40*l.* a-year.

Brebar, or, as pronounced, *Bryer island*, lies north-west of St Mary's, and to the west of Trefcaw, to which, when the sea is very low, they sometimes pass over the sand. It is very mountainous, abounds with sea and land fowls, excellent samphire, and a great variety of medical herbs. There are at present thirteen families, who have a pretty church, and pay 30*l.* a-year to the proprietor.

South from hence, and west from Trefcaw, stands the island of *Samson*, in which there is not above one family, who subsist chiefly by the making of kelp. To the westward of these there lie four islands, which contain in the whole 360 acres of meadow and arable land. The *eastern isles*, so denominated from their position in respect to St Mary's, contain 123 acres; and there are also seven other rocky and scattered islands, that have each a little land of some use; and besides these, innumerable rocks on every side, among which we must reckon *Scilly*, now nothing more than a large, ill-shaped, craggy, inaccessible island, lying the farthest north-west of any of them, and consequently the nearest to the continent.

The air of these islands is equally mild and pure; their winters are seldom subject to frost or snow. When the former happens, it lasts not long; and the latter never lies upon the ground. The heat of their summers is much abated by sea-breezes. They are indeed frequently incommoded by sea fogs, but these are not unwholesome. Agues are rare, and fevers more so. The most fatal distemper is the small-pox; yet those who live temperately survive commonly to a great age, and are remarkably free from diseases. The soil is very good, and produces grain of all sorts (except wheat, of which they had anciently plenty) in large quantities. They still grow a little wheat, but the bread made of it is unpleasant. They eat, for this reason, chiefly what is made of barley; and of this they have such abundance, that though they use it both for bread and beer, they have more than suffices for their own consumption. The use of potatoes is a new improvement; and they prosper to such a degree, that in some places there are two crops in a-year. Roots of all sorts, pulse, and salads, grow well; dwarf fruit-trees, gooseberries, currants, raspberries, and every thing of that kind, under proper shelter, thrive exceedingly; but they have no trees, though formerly they had elder; and porthelik, *i. e.* the harbour of willows, proves they had these likewise; and with a little care, no doubt, great improvements might be made. The ranunculus, anemone, and most kinds of flowers, are successfully cultivated in their gardens. They have wild fowl of all

sorts, from the swan to the snipe; and a particular kind called the *hedge-chicken*, which is not inferior to the ortolan: also tame fowl, puffins, and rabbits, in great numbers. Their black cattle are generally small, but very well tasted, though they feed upon ore-weed. Their horses are little, but strong and lively. They have also large flocks of fine sheep, whose fleeces are tolerably good and their flesh excellent. There are no venomous creatures in these islands.

We must now pass to the sea, which is of more consequence to these isles than that small portion of land which is distributed amongst them. St Mary's harbour is very safe and capacious, having that island on the south; the eastern islands, with that of St Martin, on the east; Trefcaw, Brebar, and Samson, to the north; St Agnes and several small islands to the west. Ships ride here in three to five fathom water, with good anchorage. Into this harbour there are four inlets, viz. Broad Sound, Smith's Sound, St Mary's Sound, and Crow Sound: so that hardly any wind can blow with which a ship of 150 tons cannot safely sail through one or other of them, Crow Sound only excepted, where they cannot pass at low water, but at high there is from 16 to 24 feet in this passage. Besides these there are two other harbours; one called *New Grynsey*, which lies between Brebar and Trefcaw, where ships of 300 tons may ride securely. The other is called *Old Grynsey*, and lies between Trefcaw, St Helen's, and Theon, for smaller ships. The former is guarded by the batteries at Oliver's Castle; the latter by the Blockhouse, on the eastern side of Trefcaw, called *Dover*. Small coasters bound to the northward have more convenient outlets from these little harbours than from St Mary's, where, at the west end of Hugh Town, there is a fine pier built by the present earl of Godolphin, 430 feet long, 20 feet wide in the narrowest part, and 23 feet in height, with 16 feet of water at a spring, and 10 at a neap tide; so that under the shelter of this pier, vessels of 150 tons may lie securely, not only close to the quay, but all along the strand of the town.

In this harbour, and in all the little coves of the several isles, prodigious quantities of mackerel may be caught in their season; also soal, turbot, and plaice, remarkably good in their kind; and ling, which from its being a thicker fish, mellowed, and better fed, is very justly preferred to any caught nearer our own coasts. Salmon, cod, pollock, are in great plenty, and pilchards in vast abundance. To these we may add the alga marina, fucus, or ore-weed, which serves to feed both their small and great cattle, manures their lands, is burned into kelp, is of use in physic, is sometimes preserved, sometimes pickled, and is in many other respects very beneficial to the inhabitants, of whom we are next to speak.

The people of Scilly in general are robust, handsome, active, hardy, industrious, generous, and good-natured; speak the English language with great propriety; have strong natural parts (though for want of a good school they have little education), as appears by their dexterity in the several employments to which they are bred. They cultivate most of their lands as well as can be expected under their present circumstances. They are bred from their infancy to the management of their boats, in which they excel; are good fishermen,

fishermen, and excellent pilots. Their women are admirable housewives, spin their own wool, weave it into coarse cloth, and knit stockings. They have no timber of their own growth, and not much from England; yet they have many joiners and cabinet-makers, who, out of the fine woods which they obtain from captains of ships who put in here, make all kinds of domestic furniture in a very neat manner. They are free from the land-tax, malt-tax, and excise; and being furnished with plenty of liquors from the vessels which are driven into their roads for refreshment, for necessary repairs, or to wait for a fair wind, in return for provisions and other conveniences; this, with what little fish they can cure, makes the best part of their trade, if we except their kelp, which has been a growing manufacture for these fourscore years, and produces at present about 500 l. per annum.

The right honourable the earl of Godolphin is styled proprietor of Scilly, in virtue of letters-patent granted to the late earl, then lord Godolphin, dated the 25th of July 1698, for the term of 89 years, to be computed from the end and expiration of a term of 50 years, granted to Francis Godolphin, Esq; by king Charles I.; that is, from the year 1709 to 1798, when his lease determines. In virtue of this royal grant, his lordship is the sole owner of all lands, houses, and tenements; claims all the tithes, not only of the fruits of the earth, but of fish taken at sea and landed upon those premises; harbour-duties paid by ships; and one moiety of the wrecks, the other belonging to the admiralty. There is only one ecclesiastical person upon the islands, who resides at St Mary's, and visits the other inhabited islands once a year. But divine service is performed, and sermons read, every Sunday in the churches of those islands, by an honest layman appointed for that purpose; and there are likewise church-wardens and overseers, regularly chosen in every parish. As to the civil government, it is administered by what is called the *Court of Twelve*; in which the commander in chief, the proprietor's agent, and the chaplain, have their seats in virtue of their offices: the other nine are chosen by the people. These decide, or rather compromise, all differences; and punish small offences by fines, whippings, and the ducking-stool: as to greater enormities, we may conclude they have not been hitherto known; since, except for the soldiers, there is no prison in the islands. But in case of capital offences, the criminals may be transported to the county of Cornwall, and there brought to justice.

The great importance of these islands arises from their advantageous situation, as looking equally into St George's Channel, which divides Great Britain from Ireland, and the English Channel, which separates Britain from France. For this reason, most ships bound from the southward strive to make the Scilly islands; in order to steer their course with greater certainty. It is very convenient also for vessels to take shelter amongst them; which prevents their being driven to Milford Haven, nay sometimes into some port in Ireland, if the wind is strong at east; or, if it blows hard at north-west, from being forced back into some of the Cornish harbours, or even on the French coasts. If the wind should not be very high, yet if unfavourable or unsteady, as between the channels often happens, it is better to put into Scilly, than to beat about at sea in bad weather.

The intercourse between these two channels is another motive why ships come in here, as choosing rather to wait in safety for a wind, than to run the hazard of being blown out of their course; and therefore a strong gale at east seldom fails of bringing thirty or forty vessels, and frequently a larger number, into Scilly; not more to their own satisfaction than to that of the inhabitants. Ships homeward-bound from America often touch there, from the desire of making the first land in their power, and for the sake of refreshment. These reasons have an influence on foreign ships, as well as our own; and afford the natives an opportunity of showing their wonderful dexterity in conducting them safely into St Mary's harbour, and, when the wind serves, through their sounds. Upon firing a gun and making a waft, a boat immediately puts off from the nearest island, with several pilots on board; and having with amazing activity dropped one of them into every ship, till only two men are left in the boat, these return again to land, as the wind and other circumstances direct, in one of their little coves.

Respecting a current which often prevails to the westward of Scilly, Mr Rennel has published some observations of much importance. "It is a circumstance (says he) well known to seamen, that ships, in coming from the Atlantic, and steering a course for the British channel, in a parallel somewhat to the south of the Scilly islands, do notwithstanding often find themselves to the north of those islands; or, in other words, in the mouth of St George's or of the Bristol channel. This extraordinary error has passed for the effects either of bad steerage, bad observations of latitude, or the indraught of the Bristol channel: but none of these account for it satisfactorily; because, admitting that at times there may be an indraught, it cannot be supposed to extend to Scilly; and the case has happened in weather the most favourable for navigating and for taking observations. The consequences of this deviation from the intended tract have very often been fatal; particularly in the loss of the Nancy packet in our own times, and that of Sir Cloudesley Shovel and others of his fleet at the beginning of the present century. Numbers of cases, equally melancholy, but of less celebrity, have occurred; and many others, in which the danger has been imminent, but not fatal, have scarcely reached the public ear. All of these have been referred to accident; and therefore no attempt seems to have been made to investigate the cause of them.

"I am, however, of opinion, that they may be imputed to a specific cause; namely, a current: and I shall therefore endeavour to investigate both that and its effects, that seamen may be apprized of the times when they are particularly to expect it in any considerable degree of strength; for then only it is likely to occasion mischief, the current that prevails at ordinary times being probably too weak to produce an error in the reckoning, equal to the difference of parallel between the south part of Scilly and the tract in which a commander, prudent in his measures, but unsuspicious of a current, would choose to sail."

The original cause of this current is the prevalence of westerly winds in the Atlantic, which impel the waters along the north coast of Spain, and accumulate them in the Bay of Biscay; whence they are projected along the coast of France, in a direction north-west by west.

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west to the west of Scilly and Ireland. The major assigns strong reasons for the existence of this current between Ushant and Ireland, in a chart of the traits of the Hector and Atlas, East India ships, in 1778 and 1787. The following remarks on the effect of this current are abridged from the author's work, which is well worthy the perusal of all sailors and shipmasters.

1st, If a ship crosses it obliquely, that is, in an east by south or more southerly direction, she will continue much longer in it, and of course be more affected by it, than if she crossed it more directly. The same consequence will happen if she crosses it with light winds. 2dly, A good observation of latitude at noon would be thought a sufficient warrant for running eastward during a long night; yet as it may be possible to remain in the current long enough to be carried from a parallel, which may be deemed a very safe one, to that of the rocks of Scilly, it would appear prudent, after experiencing a continuance of strong westerly winds in the Atlantic, and approaching the Channel with light southerly winds, either to make Ushant in time of peace, or at all events to keep in the parallel of $48^{\circ}45'$ at the highest. 3dly, Ships bound to the westward, from the mouth of the Channel, with the wind in the south-west quarter, should prefer the larboard tack. 4thly, Major Rennel approves the design of removing the light-house of Scilly (if it be not already removed) to the south-west part of the high rocks. 5thly, He recommends the sending a vessel, with time-keepers on board, to examine the soundings between the parallels of Scilly and Ushant; from the meridian of the Lizard Point as far west as the moderate depths extend. A set of time-keepers, he observes, will effect more in one summer, in skilful hands, than all the science of Dr Halley could do in the course of a long life.

In time of war, the importance of these islands is still more conspicuous; and it is highly probable, that they afforded the allies a place for assembling their fleet, when the Britons, Danes, Scots, and Irish, failed under the command of Anlaf, to attack King Athelstan; which convinced him of the necessity of adding them to his dominions. Upon the like principle, Henry VIII. when upon bad terms with his neighbours, caused an old fortress to be repaired; and Queen Elizabeth, who had more to fear, directed the construction of a castle, which, in part at least, still remains. But the most singular instance of the detriment that might arise from these islands falling into other hands than our own happened in 1651, when Sir John Grenville took shelter in them with the remains of the Cornish cavaliers. For the depredations committed by his frigates soon made it evident that Scilly was the key of the English commerce; and the clamours of the merchants thereupon rose so high, that the parliament were forced to send a fleet of fifty sail, with a great body of land-forces on board, under Sir George Ayscue and admiral Blake, who with great difficulty, and no inconsiderable loss, made themselves masters of Tresco and Brehar; where they erected those lines and fortifications near the remains of the old fortress that are called *Oliver's Castle*. But at length, finding that little was to be done in that way, they chose to grant Sir John Grenville a most honourable capitulation, as the surest means to recover places of such consequence; with which the parliament were very little

satisfied, till Mr Blake gave them his reasons; which appeared to be so well founded, that they directed the articles he had concluded to be punctually carried into execution.

SCIO, or CHIO, a celebrated island of the Archipelago (see CHIO). It is 32 miles long and 15 broad, is a mountainous but very pleasant country. The principal mountain, called anciently *Pelinaus*, presents to view a long lofty range of bare rock, reflecting the sun; but the recesses at its feet are diligently cultivated, and reward the husbandman by their rich produce. The slopes are clothed with vines. The groves of lemon, orange, and citron-trees, regularly planted, at once perfume the air with the odour of their blossoms, and delight the eye with their golden fruit. Myrtles and jasmines are interspersed, with olive and palm-trees, and cypresses. Amid these the tall minarees rise, and white houses glitter, dazzling the beholder. The inhabitants export a large quantity of pleasant wine to the neighbouring islands, but their principal trade is in silks. They have also a small commerce in wool, cheese, figs, and mastic. The women are better bred than in other parts of the Levant; and though the dress is odd, yet it is very neat. The partridges are tame, being sent every day into the fields to get their living, and in the evening are called back with a whistle. The town called *Scio* is large, pleasant, and the best built of any in the Levant, the houses being beautiful and commodious, some of which are terraced, and others covered with tiles. The streets are paved with hint-stones; and the Venetians, while they had it in their possession, made a great many alterations for the better. The castle is an old citadel built by the Genoese, in which the Turks have a garrison of 1400 men. The harbour of Scio is the rendezvous of all shipping that goes to or comes from Constantinople, and will hold a fleet of fourscore vessels. They reckon there are 10,000 Turks, 100,000 Greeks, and 10,000 Latins, on this island. The Turks took it from the Venetians in 1695. Scio is a bishop's see, and is seated on the sea-side, 47 miles west of Smyrna, and 210 south-west of Constantinople.

There are but few remains of antiquity in this place. "The most curious of them (says Dr Chandler) is that which has been named without reason the *School of Homer*. It is on the coast at some distance from the city northward, and appears to have been an open temple of Cybele, formed on the top of a rock. The shape is oval, and in the centre is the image of the goddess, the head and an arm wanting. She is represented, as usual, sitting. The chair has a lion carved on each side, and on the back. The area is bounded by a low rim or seat, and about five yards over. The whole is hewn out of the mountain, is rude, indistinct, and probably of the most remote antiquity. From the slope higher up is a fine view of the rich vale of Scio, and of the channel, with its shining islands, beyond which are the mountains on the mainland of Asia."

SCIOPPIUS (Gaspar), a learned German writer of the 17th century, was born at Neumark in the Upper Palatinate on the 27th of May 1576. He studied at the university with so much success, that at the age of 16 he became an author; and published books, says Ferrari, which deserved to be admired by old men. His dispositions did not correspond with his genius. Naturally passionate and malevolent, he assaulted without mercy

mercy the character of eminent men. He abjured the system of the Protestants, and became a Roman catholic about the year 1599; but his character remained the same. He possessed all those qualities which fitted him for making a distinguished figure in the literary world; imagination, memory, profound learning, and invincible impudence. He was familiar with the terms of reproach in most of the languages. He was entirely ignorant of the manners of the world. He neither showed respect to his superiors, nor did he behave with decency to his equals. He was possessed with a frenzy of an uncommon kind: he was indeed a perfect firebrand, scattering around him, as if for his amusement, the most atrocious calumnies. Joseph Scaliger, above all others, was the object of his satire. That learned man, having drawn up the history of his own family, and deduced its genealogy from princes, was severely attacked by Scioppius, who ridiculed his high pretensions. Scaliger in his turn wrote a book intitled *The Life and Parentage of Gaspar Scioppius*, in which he informs us, that the father of Scioppius had been successively a grave-digger, a journeyman stationer, a hawker, a soldier, a miller, and a brewer of beer. We are told that his wife was long kept as a mistress, and at length forsaken by a debauched man whom she followed to Hungary, and obliged to return to her husband; that then he treated her harshly, and condemned her to the lowest offices of servitude. His daughter, too, it is said, was as disorderly as her mother: that after the flight of her husband, who was going to be burned for some infamous crimes, she became a common prostitute; and at length grew so scandalous, that she was committed to prison. These severe accusations against the family of Scioppius inflamed him with more eagerness to attack his antagonist anew. He collected all the calumnies that had been thrown out against Scaliger, and formed them into a huge volume as if he had intended to crush him at once. He treated with great contempt the King of England, James I. in his *Ecclesiasticus*, &c. and in his *Collyrium Regium Britannie Regi graviter ex oculis laboranti munere missum*; that is, "An Eye salve for his Britannic Majesty." In one of his works he had the audacity to abuse Henry IV. of France in a most scurrilous manner, on which account his book was burned at Paris. He was hung in effigy in a farce which was represented before the king of England, but he gloried in his dishonour. Provoked with his insolence to their sovereign, the servants of the English ambassador assaulted him at Madrid, and corrected him severely; but he boasted of the wounds he had received. He published more than thirty defamatory libels against the Jesuits; and, what is very surprising, in the very place where he declaims with most virulence against that society, he subscribes his own name with expressions of piety. *I Gaspar Scioppius, already on the brink of the grave, and ready to appear before the tribunal of Jesus Christ to give an account of my works.* Towards the end of his life he employed himself in studying the Apocalypse, and affirmed that he had found the key to that mysterious book. He sent some of his expositions to Cardinal Mazarine, but the cardinal did not find it convenient to read them.

Ferrari tells us, that during the last fourteen years of his life he shut himself up in a small apartment, where he devoted himself solely to study. The same writer

acquaints us, that he could repeat the Scriptures almost entirely by heart; but his good qualities were eclipsed by his vices. For his love of slander, and the furious assaults which he made upon the most eminent men, he was called the *Cerberus of literature*. He accuses even Cicero of barbarisms and improprieties. He died on the 19th November 1649, at the age of 74, at Padua, the only retreat which remained to him from the multitude of enemies whom he had created. Four hundred books are ascribed to him, which are said to discover great genius and learning. The chief of these are, 1. *Veresimilium Libri IV.* 1596, in 8vo. 2. *Commentarius de arte critica*, 1661, in 8vo. 3. *De sua ad Catholicos migratione*, 1660, in 8vo. 4. *Notationes Critice in Phædrum*, in *Priapeia*, *Patavii*, 1664, in 8vo. 5. *Supplementum lectionum Libri V.* 1664, in 8vo. 6. *Classicum belli sacri*, 1619, in 4to. 7. *Collyrium regium*, 1611, in 8vo. 8. *Grammatica Philosophica*, 1644, in 8vo. 9. *Relatio ad Reges et Principes de Stratagematibus et Societatis Jesu*, 1641, in 12mo. This last mentioned book was published under the name of *Alphonso de Vargas*. He was at first well disposed to the Jesuits; but these fathers on one occasion opposed him. He presented a petition to the diet of Ratisbonne in 1630, in order to obtain a pension; but the Jesuits, who were the confessors both of the emperor and the electors, had influence to prevent the petition from being granted. From that moment Scioppius turned his whole artillery against the Jesuits.

SCIPIO (Publius Cornelius), a renowned Roman general, surnamed *Africanus*, for his conquests in that country. His other signal military exploits were, his taking the city of New Carthage in a single day; his complete victory over Hannibal, the famous Carthaginian general; the defeat of Syphax king of Numidia, and of Antiochus in Asia. He was as eminent for his chastity, and his generous behaviour to his prisoners, as for his valour. He died 180 B. C. aged about 51.

SCIPIO (Lucius Cornelius), his brother, surnamed *Asiaticus*, for his complete victory over Antiochus at the battle of Magnesia, in which Antiochus lost 50,000 infantry and 4000 cavalry. A triumph, and the surname of *Asiaticus*, were the rewards of his valour. Yet his ungrateful countrymen accused him, as well as his brother, of peculation; for which he was fined: but the public sale of his effects proved the falsehood of the charge; for they did not produce the amount of the fine. He flourished about 190 B. C.

SCIPIO (Publius Emilianus), was the son of Paulus Emilius; but being adopted by Scipio Africanus, he was called *Scipio Africanus junior*. He showed himself worthy of adoption, following the footsteps of Scipio Africanus, whom he equalled in military fame and public virtues. His chief victories were the conquest of Carthage and Numantia; Yet these signal services to his country could not protect him from an untimely fate. He was strangled in his bed by order of the Decemviri, who dreaded his popularity, 129 B. C. aged 56.

SCIRO, an island of the Archipelago, to the west of Mytilene, to the north-east of Negropont, and to the south-east of Sciati. It is 15 miles in length, and 8 in breadth. It is a mountainous country, but has no mines. The vines make the beauty of the island, and the wine is excellent; nor do the natives want wood.

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Sciurus.

wood. There is but one village; and that is built on a rock, which runs up like a sugar-loaf, and is 10 miles from the harbour of St George. The inhabitants are all Greeks, the *cadi* being the only Turk among them.

SCIROCHO, or SIROCHO, a name generally given in Italy to every unfavourable wind. In the south-west it is applied to the hot suffocating blasts from Africa, and in the north-east it means the cold bleak winds from the Alps.

SCIRPUS, in botany: A genus of the monogynia order, belonging to the triandria class of plants; and in the natural method ranking under the 3d order, *Calamaria*. The glumes are paleaceous, and imbricated all round. There is no corolla; and only one beardless seed.

SCIRRHUS, in surgery and medicine, a hard tumor of any part of the body, void of pain, arising, as is supposed, from the inspissation and induration of the fluids contained in a gland, though it may also appear in any other part of the body, especially in the fat; being one of the ways in which an inflammation terminates. These tumors are exceedingly apt to degenerate into cancers.

SCITAMINEÆ. See BOTANY, p. 459.

SCIURUS, the squirrel; a genus of quadrupeds belonging to the order of glires. It has two fore-teeth in each jaw, the superior ones shaped like wedges, and the inferior ones compressed. There are 11 species; of which the most remarkable are,

1. The *vulgaris*, or common squirrel, with ears terminated with long tufts of hair; large, lively, black eyes; head, body, legs, and tail, of a bright reddish brown; breast and belly white; hair on each side the tail lies flat. In Sweden and Lapland, it changes in winter into grey. In Russia it is sometimes found black. In many parts of England there is a beautiful variety, with milk white tails.—This species inhabits Europe and North America, the northern and the temperate parts of Asia: and a variety is even found as far south as the isle of Ceylon. It is a neat, lively, active animal; lives always in woods: in the spring, the female is seen pursued from tree to tree by the males, feigning an escape from their embraces; makes its nest of moss and dried leaves between the fork of two branches; brings three or four young at a time; has two holes to its nest; stops up that on the side the wind blows, as Pliny justly remarks; lays in a hoard of winter provision, such as nuts, acorns, &c.; in summer, feeds on buds and young shoots; is particularly fond of those of fir, and the young cones; sits up to eat, and uses its fore-feet as hands; covers itself with its tail; leaps to a surprising distance; when disposed to cross a river, a piece of bark is its boat, its tail the sail; is in great plenty in Dunmallet, and there called *Conn*. Boys frequently nurse this beautiful and active animal under cats. "There are three creatures, the squirrel, the field-mouse, and the bird called the *nuthatch*, which live much on hazel nuts; and yet they open them each in a different way. The first, after rasping off the small end, splits the shell in two with his long fore-teeth; as a man does with his knife; the second nibbles a hole with his teeth, so regular as if drilled with a wimble, and yet so small, that one would wonder how the kernel can be extracted through it; while the last pecks

an irregular ragged hole with its bill; but as this artist has no paws to hold the nut firm while he pierces it, like an adroit workman, he fixes it, as it were in a vice, in some cleft of a tree, or in some crevice; when, standing over it, he perforates the stubborn shell. While at work, they make a rapping noise, that may be heard at a considerable distance." *White's Selborne*.

2. The *cinereus*, or grey squirrel, with plain ears; hair of a dull grey colour, mixed with black, and often tinged with dirty yellow; belly and insides of the legs white; tail long, bushy, grey, and striped with black: size of a half-grown rabbit.—Inhabits the woods of Northern Asia, North America, Peru, and Chili. They are very numerous in North America, do incredible damage to the plantations of maize, run up the stalks and eat the young ears. Descend in vast flocks from the mountains, and join those that inhabit the lower parts; are proscribed by the provinces, and a reward of three-pence per head given for every one that is killed. Such a number was destroyed one year, that Pennsylvania alone paid in rewards L. 8000 of its currency. Make their nests in hollow trees, with moss, straw, wool, &c. Feed on maize in the season, and on pine-cones, acorns, and masts of all kinds: form holes under-ground, and there deposit a large stock of winter provision. Descend from the trees, and visit their magazines when in want of meat; are particularly busy at the approach of bad weather; during the cold season keep in their nest for several days together; seldom leap from tree to tree, only run up and down the bodies; their hoards often destroyed by swine; when their magazines are covered with deep snow, the squirrels often perish for want of food; are not easily shot, nimbly changing their place when they see the gun levelled; have the actions of the common squirrel; are easily tamed; and their flesh is esteemed very delicate. Their furs, which are imported under the name of *petit-gris*, are valuable, and used as linings to cloaks.

3. The *niger*, or black squirrel, with plain ears; sometimes wholly black, but often marked with white on the nose, the neck, or end of the tail; the tail shorter than that of the former; the body equal. It inhabits the north of Asia, North America, and Mexico; breeds and associates in separate troops; is equally numerous with the former; commits as great ravages among the maize; makes its nest in the same manner, and forms, like them, magazines for winter food. The finest are taken near the lake Baikal, and about Barguzinskoi-ostrog, upon the Upper Angara, in the district of Nertschinsk, which are the best in all Siberia; these continue black the whole year, the others grow rusty in summer.—There is a variety with plain ears; coarse fur mixed with dirty white and black; throat and inside of the legs and thighs black; tail much shorter than those of squirrels usually are; of a dull yellow colour, mixed with black; body of the size of the grey squirrel. It inhabits Virginia; the planters call it the *cat squirrel*.

4. The *flavus*, or fair squirrel, with the body and tail of a flaxen colour; of a very small size, with plain round ears, and rounded tail. Inhabits the woods near Amadabad, the capital of Guzurat, in great abundance, leaping from tree to tree. Linnæus says it is an inhabitant of South America.

5. The *striatus*, or ground squirrel, with plain ears; ridge

ridge of the back marked with a black streak; each side with a pale yellow stripe, bounded above and below with a line of black; head, body, and tail, of a reddish brown; the tail the darkest: breast and belly white; nose and feet pale-red; eyes full.—Inhabits the north of Asia, but found in the greatest abundance in the forests of North America. They never run up trees except they are pursued, and find no other means of escaping: they burrow, and form their habitations under ground, with two entrances, that they may get access to the one in case the other is stopped up. Their retreats are formed with great skill, in form of a long gallery, with branches on each side, each of which terminates in an enlarged chamber, as a magazine to store their winter provision in; in one they lodge the acorns, in another the maize, in a third the hickory nuts, and in the last their favourite food the chinquapin chefnut. They very seldom stir out during winter, at least as long as their provisions last; but if that fails, they will dig into cellars where apples are kept, or barns where maize is stored, and do a great deal of mischief; but at that time the cat destroys great numbers, and is as great an enemy to them as to mice. During the maize harvest these squirrels are very busy in biting off the ears, and filling their mouths so full with the corn, that their cheeks are quite distended. It is observable that they give great preference to certain food; for if, after filling their mouths with rye, they happen to meet with wheat, they fling away the first, that they may indulge in the last. They are very wild, bite severely, and are scarcely ever tamed; the skins are of little use, but are sometimes brought over to line cloaks.

6. The *glis*, or fat squirrel, with thin naked ears; body covered with soft ash-coloured hair; belly whitish; tail full of long hair: from nose to tail, near six inches; tail, four and a half: thicker in the body than the common squirrel.—Inhabits France and the south of Europe; lives in trees, and leaps from bough to bough; feeds on fruits and acorns; lodges in the hollows of trees; remains in a torpid state during winter, and grows very fat. It was esteemed a great delicacy by the Romans, who had their gliraria, places constructed to keep and feed them in.

7. The *fagitta*, or arrow squirrel, with a small round head, cloven upper lip: small blunt ears, two small warts at the utmost corner of each eye, with hairs growing out of them: neck short: four toes on the fore feet; and instead of a thumb, a slender bone two inches and a half long, lodged under the lateral membrane, serving to stretch it out: from thence to the hind legs extends the membrane, which is broad, and a continuation of the skin of the sides and belly: there are five toes on the hind feet; and on all the toes, sharp compressed bent claws: the tail is covered with long hairs disposed horizontally: colour of the head, body, and tail, a bright bay; in some parts inclining to orange: breast and belly of a yellowish white: length from nose to tail, eighteen inches; tail, fifteen.—Inhabits Java, and others of the Indian islands: leaps from tree to tree as if it flew: will catch hold of the boughs with its tail. Niewhoff, p. 354. describes this under the name of the flying cat, and says the back is black.

8. The *volans*, or flying squirrel, with round naked ears, full black eyes, and a lateral membrane from the fore to the hind legs: tail with long hairs disposed hori-

zontally, longest in the middle: its colour above, a brownish ash; beneath, white tinged with yellow: much less than the common squirrel. Inhabits Finland, Lapland, Poland, Russia, North America, and New Spain: lives in hollow trees: sleeps in the day: during the night is very lively: is gregarious, numbers being found in one tree: leaps from bough to bough sometimes at the distance of ten yards: this action has improperly been called flying, for the animal cannot go in any other direction than forward; and even then cannot keep an even line, but sinks considerably before it can reach the place it aims at: sensible of this, the squirrel mounts the higher in proportion to the distance it wishes to reach: when it would leap, it stretches out the fore-legs, and extending the membranes becomes specifically lighter than it would otherwise be, and thus is enabled to spring further than other squirrels that have not this apparatus. When numbers leap at a time, they seem like leaves blown off by the wind. Their food: the same as the other squirrels. They are easily tamed: bring three or four young at a time. See fig. 3 & 4, the one representing the animal in what is called a *flying*, the other in a *sitting*, posture.

SCIURUS, in botany: A genus of the monogynia order, belonging to the diandria class of plants; and in the natural method ranking with those that are doubtful. The calyx is quinqueentate; the corolla bilabiated; the filaments are barren; the capsules five, and joined together; bivalved, unilocular, with one seed. Of this there is one species, viz. *aromatica*, a native of Guiana.

SCLAVONIA, a country of Europe, between the rivers Save, the Drave, and the Danube. It is divided into six counties, viz. Posagra, Zabrab, Creis, Warasden, Zreim, and Walpon, and belongs to the house of Austria. It was formerly called a *kingdom*; and is very narrow, not being above 75 miles in breadth; but it is 300 in length, from the frontiers of Austria to Belgrade. The eastern part is called *Ratzia*, and the inhabitants *Ratzians*. These, from a particular notion, are of the Greek church. The language of Sclavonia is the mother of four others, namely, those of Hungary, Bohemia, Poland, and Russia.

SCLERANTHUS, in botany: A genus of the digynia order, belonging to the dodecandria class of plants, and in the natural method ranking under the 22d order, *Caryophyllei*. The calyx is monophyllous; there is no corolla; there are two seeds contained in the calyx.

SCLERIA, in botany: A genus of the tetrandria order, belonging to the monocelia class of plants; and in the natural method ranking under the 4th order, *Gramina*. The calyx has a gluma, with from two to six valves; the flowers numerous; the seed a sort of nut, small, oblong, and shining. There are six species, all of them natives of the West Indies.

SCLEROTICS, medicines proper to harden and consolidate the flesh of the parts to which they are applied; as purslain, house-leek, flea-wort, garden nightshade, &c.

SCOLOPAX, in ornithology, a genus belonging to the order of grallæ. The back is cylindrical, obtuse, and longer than the head; the nostrils are linear; the face is covered; and the feet have four toes. There are 18 species; of which the following are the principal.

Scolopax.

Plate
cccxlV.

1. The *arguta*, or curlew, frequents our sea-coasts and marshes in the winter time in large flocks, walking on the open sands; feeding on shells, frogs, crabs, and other marine insects. In summer they retire to the mountainous and unfrequented parts of the country, where they pair and breed. Their eggs are of a pale olive colour, marked with irregular but distinct spots of pale brown. Their flesh is very rank and fishy, notwithstanding an old English proverb in its favour. Curlews differ much in weight and size; some weighing 37 ounces, others not 22: the length of the largest to the tip of the tail, 25 inches; the breadth, three feet five inches; the bill is seven inches long: the head, neck, and coverts of the wings, are of a pale brown; the middle of each feather, black; the breast and belly white, marked with narrow oblong black lines: the back is white, spotted with a few black strokes: the quill-feathers are black, but the inner webs spotted with white; the tail is white, tinged with red, and beautifully barred with black; the legs are long, strong, and of a bluish grey colour; the bottoms of the toes flat and broad, to enable it to walk on the soft mud, in search of food.

2. The *phaopus*, or whimbrel, is much less frequent on our shores than the curlew; but its haunts, food, and general appearance, are much the same. It is observed to visit the neighbourhood of Spalding (where it is called the *curlew knot*) in vast flocks in April, but continues there no longer than May; nor is it seen there any other time of the year: it seems at that season to be on its passage to its breeding place, which Mr Pennant suspects to be among the Highlands of Scotland. The specific difference is the size; this never exceeding the weight of 12 ounces.

3. The *rusticola*, or woodcock, during summer inhabits the Alps of Norway, Sweden, Polish Prussia, the march of Brandenburg, and the northern parts of Europe: they all retire from those countries the beginning of winter, as soon as the frosts commence; which force them into milder climates, where the ground is open, and adapted to their manner of feeding. They live on worms and insects, which they search for with their long bills in soft grounds and moist woods.—Woodcocks generally arrive here in flocks, taking advantage of the night or a mist: they soon separate; but before they return to their native haunts, pair. They feed and fly by night; beginning their flight in the evening, and return the same way or through the same glades to their day retreat. They leave England the latter end of February, or beginning of March; not but they have been known to continue here accidentally. These birds appear in Scotland first on the eastern coasts, and make their progress from east to west. They do not arrive in Breadalbane, a central part of the kingdom, till the beginning or middle of November; nor the coasts of Nether Lorn, or of Ross-shire, till December or January: they are very rare in the remote Hebrides, and in the Orkneys. A few stragglers now and then arrive there. They are equally scarce in Caithness. Our species of woodcock is unknown in North America: but a kind is found that has the general appearance of it; but is scarce half the size, and wants the bars on the breast and belly. The weight of the woodcock is usually about 12 ounces; the length near 14 inches; and the breadth, 26; the bill is three

inches long, dusky towards the end, reddish at the base; tongue slender, long, sharp, and hard at the point; the eyes large, and placed near the top of the head, that they may not be injured when the bird thrusts its bill into the ground; from the bill to the eyes is a black line; the fore-head is a reddish ash colour; the crown of the head, the hind part of the neck, the back, the coverts of the wings, and the scapulars, are prettily barred with a ferruginous red, black, and grey; but on the head the black predominates: the quill-feathers are dusky, indented with red marks. The chin is of a pale yellow; the whole under side of the body is of a dirty white, marked with numerous transverse lines of a dusky colour. The tail consists of 12 feathers, dusky or black on the one web, and marked with red on the other; the tips above, are ash-coloured, below white; which, when shooting on the ground was in vogue, was the sign the fowler discovered the birds by.—The legs and toes are livid; the latter divided almost to their very origin, having only a very small web between the middle and interior toes; as those of the two species of snipes found in England.

4. The *agocephala*, or godwit, weighs 12 ounces and a half; the length is 16 inches; the breadth 27; the bill is four inches long, turns up a little, black at the end, the rest a pale purple; from the bill to the eye is a broad white stroke; the feathers of the head, neck, and back, are of a light reddish brown, marked in the middle with a dusky spot; the belly and vent feathers white, the tail regularly barred with black and white. The six first quill-feathers are black; their interior edges of a reddish brown; the legs in some are dusky, in others of a greyish blue, which perhaps may be owing to different ages; the exterior toe is connected as far as the first joint of the middle toe with a strong serrated membrane. The male is distinguished from the female by some black lines on the breast and throat; which in the female are wanting. These birds are taken in the fens, in the same season and in the same manner with the ruffs and reeves*; and when fattened are esteemed a great delicacy, and sell for half a crown or five shillings a piece. A stale of the same species is placed in the net. They appear in small flocks on our coasts in September, and continue with us the whole winter; they walk on the open sands like the curlew, and feed on insects.

5. The *glottis*, or greenshank, is in length to the end of the tail, 14 inches; to that of the toes, 20; its breadth, 25. The bill is two inches and a half long; the upper mandible black, straight, and very slender; the lower reflects a little upwards; the head and upper part of the neck are ash-coloured, marked with small dusky lines pointing down; over each passes a white line; the coverts, the scapulars, and upper part of the back, are of a brownish ash-colour; the quill-feathers dusky, but the inner webs speckled with white; the breast, belly, thighs, and lower part of the back, are white; the tail is white, marked with undulated dusky bars: the inner coverts of the wings finely crossed with double and treble rows of a dusky colour. It is a bird of an elegant shape, and small weight in proportion to its dimensions, weighing only six ounces. The legs are very long and slender, and bare above two inches higher than the knees. The exterior toe is united to the middle toe, as far as the second joint, by a strong mem.

max, membrane which borders their sides to the very end.—
 en- These birds appear on the English coasts and wet
 grounds in the winter-time in but small numbers.

6. The *calidris*, or red-shank, is found on most of our shores; in the winter-time it conceals itself in the gutters, and is generally found single or at most in pairs. It breeds in the fens and marshes; and flies round its nest when disturbed, making a noise like a lapwing. It lays four eggs, whitish tinged with olive, marked with irregular spots of black chiefly on the thicker end. It weighs five ounces and a half: the length is 12 inches, the breadth 21; the bill near two inches long, red at the base, black towards the point. The head, hind part of the neck, and scapulars, are of a dusky ash-colour, obscurely spotted with black; the back is white, sprinkled with black spots; the tail elegantly barred with black and white; the cheeks, under side of the neck, and upper part of the breast, are white, streaked downward with dusky lines; the belly white; the exterior webs of the quill-feathers are dusky; the legs long, and of a fine bright orange colour; the utmost toe connected to the middle toe by a small membrane; the inmost by another still smaller.

7. The *gallinago*, or common snipe, weighs four ounces; the length, to the end of the tail, is near 12 inches; the breadth about 14; the bill is three inches long, of a dusky colour, flat at the end, and often rough like shagrin above and below. The head is divided lengthwise with two black lines, and three of red, one of the last passing over the middle of the head, and one above each eye: between the bill and the eyes is a dusky line; the chin is white; the neck is varied with brown and red. The scapulars are beautifully striped lengthwise with black and yellow; the quill-feathers are dusky; but the edge of the first is white, as are the tips of the secondary feathers: the quill-feathers next the back are barred with black and pale red; the breast and belly are white; the coverts of the tail are long, and almost cover it; they are of a reddish brown colour. The tail consists of 14 feathers, black on their lower part, then crossed with a broad bar of deep orange, another narrow one of black; and the ends white, or pale orange. The vent feathers are of a dull yellow; the legs pale green; the toes divided to their origin. In the winter-time snipes are very frequent in all our marshy and wet grounds, where they lie concealed in the rushes, &c. In summer they disperse to different parts, and are found in the midst of our highest mountains as well as of our low moors; their nest is made of dried grass; they lay four eggs of a dirty olive colour, marked with dusky spots; their young are so often found in England, that we doubt whether they ever entirely leave this island. When they are disturbed much, particularly in the breeding season, they soar to a vast height, making a singular bleating noise; and when they descend, dart down with vast rapidity: it is also amusing to observe the cock, while his mate sits on her eggs, poise himself on her wings, making sometimes a whistling and sometimes a drumming noise. Their food is the same with that of the woodcock; their flight very irregular and swift, and attended with a shrill scream. They are most universal birds, found in every quarter of the globe, and in all climates.

SCOLOPENDRA, in zoology, a genus of insects belonging to the order of aptera. The feet are very

numerous, being as many on each side as there are joints in the body; the antennæ are setaceous: there are two jointed pappi, and the body is depressed.—These insects are very formidable and noxious in the warm countries, where they grow to the length of a quarter of a yard or more, though in this climate they seldom grow above an inch long. The scolopendra is also called the *centipes* from its number of feet. In the East Indies it grows to six inches in length, and as thick as a man's finger: it consists of many joints; and from each joint proceeds a leg on each side: they are covered with hair, and seem to have no eyes; but there are two feelers on the head, with which they find out the way they are to pass: the head is very round, with two small sharp teeth, with which they inflict wounds that are very painful and dangerous. A sailor that was bit by one on board a ship felt excessive pain, and his life was supposed to be in danger; but by the application of roasted onions to the part he recovered. The bite of the scolopendra *morfitans* § in Jamaica is § See Plate
 said to be as poisonous as the sting of a scorpion.— ccccxlv.
 Some of the species live in holes in the earth: others under stones, and among rotten wood; so that the removing of these is exceedingly dangerous in the countries where the scolopendræ breed.—These insects, like the scorpion, are supposed to be produced perfect from the parent or the egg, and to undergo no changes after their first exelusion. They are found of all sizes; which is a sufficient reason for believing that they preserve their first appearance through the whole of their existence. It is probable, however, that, like most of this class, they often change their skins; but of this we have no certain information. The scolopendra *forcata* is the largest in this country, of a dun colour, smooth, and composed of nine scaly segments, without reckoning the head. The feet are 15 in number on each side, and the last longer than the rest, and turned backwards, form a kind of forked tail. The antennæ are twice the length of the head, and consist of 42 short segments. The insect's progressive motion is very quick, and sometimes serpentine. It is found under stones on the ground, under flower-pots and garden boxes.

SCOLYMUS, in botany: A genus of the polygama æqualis order, belonging to the syngenesia class of plants; and in the natural method ranking under the 40th order, *Compositæ*. The receptacle is paleaceous; the calyx imbricated and prickly, without any pappus.

SCOMBER, the MACKEREL, in ichthyology, a genus belonging to the order of thoracici. The head is smooth and compressed, and there are seven rays in the gill-membrane. There are ten species;—of which the most remarkable are the following.

1. The scomber, or common mackerel, a summer-fish of passage that visits our shores in vast shoals. It is less useful than other species of gregarious fish, being very tender, and unfit for carriage; not but that it may be preserved by pickling and salting, a method, we believe, practised only in Cornwall, where it proves a great relief to the poor during winter. It was a fish greatly esteemed by the Romans, because it furnished the precious garum, a sort of pickle that gave a high relish to their sauces; and was besides used medicinally. It was drawn from different kinds of fish, but that made from the mackerel had the preference: the best was made at

Scomber. Carthagena, vast quantities of mackerel being taken near an adjacent isle, called from that circumstance *Scombraria*, and the garum, prepared by a certain company in that city, bore a high price, and was distinguished by the title of *garum sociorum*. This fish is easily taken by a bait; but the best time is during a fresh gale of wind, which is thence called a *mackerel gale*. In the spring the eyes of mackerel are almost covered with a white film; during which period they are half blind. This film grows in winter, and is cast the beginning of summer. It is not often that it exceeds two pounds in weight, yet there have been instances of some that weighed upwards of five. The nose is taper and sharp pointed; the eyes large; the jaws of an equal length; the teeth small, but numerous. The form of this fish is very elegant. The body is a little compressed on the sides: towards the tail it grows very slender, and a little angular. It is a most beautiful fish when alive; for nothing can equal the brilliancy of its colour, which death impairs, but does not wholly obliterate.

2. The thunnus, or tunny, was a fish well known to the ancients: it made a considerable branch of commerce: the time of its arrival in the Mediterranean from the ocean was observed, and stations for taking them were established in places it most frequented.

There are still very considerable tunny fisheries on the coast of Sicily, as well as several other parts of the Mediterranean; where they are cured, and make a great article of provision in the adjacent kingdoms.— They are caught in nets, and amazing quantities are taken; for they come in vast shoals, keeping along the shores. See *Tunny-FISHERY*.

They frequent our coasts, but not in shoals like the tunnies of the Mediterranean. They are not uncommon in the lochs on the western coast of Scotland; where they come in pursuit of herrings; and often during night strike into the nets, and do considerable damage. When the fishermen draw them up in the morning, the tunny rises at the same time towards the surface, ready to catch the fish that drop out. On perceiving it, a strong hook baited with a herring, and fastened to a rope, is instantly flung out, which the tunny seldom fails to take. As soon as hooked, it loses all spirit; and after a very little resistance submits to its fate. It is dragged to the shore and cut up, either to be sold fresh to people who carry it to the country markets, or is preserved salted in large casks. The pieces, when fresh, look exactly like raw beef; but when boiled turn pale, and have something of the flavour of salmon.

One that was taken when Mr Pennant was at Inverary in 1769, weighed 460 pounds. The fish was seven feet ten inches long: the greatest circumference five feet seven; the least near the tail one foot six. The body was round and thick, and grew suddenly very slender towards the tail, and near that part was angular. The irides were of a plain green: the teeth very minute. The tail was in form of a crescent; and two feet seven inches between tip and tip. The skin on the back was smooth, very thick, and black. On the belly the scales were visible. The colour of the sides and belly was silvery, tinged with cerulean and pale purple: near the tail marbled with grey.

They are known on the coast of Scotland by the

name of *mackrelsture*: *Mackrel*, from being of that genus; and *sture*, from the Danish, *stor* "great."

SCONE, a town of Scotland, remarkable for being the place where the kings were anciently crowned. W. Long. 3. 10. N. Lat. 56. 28. Here was once an abbey of great antiquity, which was burnt by the reformers at Dundee. Kenneth II. upon his conquest of the Picts in the ninth century, having made Scone his principal residence, delivered his laws, called the *Macalpine laws*, from a *tumulus*, named the *Mote Hill of Scone*. The present palace was begun by the earl of Gowrie; but was completed by Sir David Murray of Gofpatric, the favourite of king James VI. to whom that monarch had granted it; and the new possessor in gratitude to his benefactor put up the king's arms in several parts of the house. It is built around two courts. The dining room is large and handsome; and has an ancient and magnificent chimney-piece, and the king's arms, with this motto:

Nobis hæc invicta miserunt centum sex proavi.

Beneath are the Murray arms. In the drawing room is some good old tapestry, with an excellent figure of Mercury. In a small bed-chamber is a medley scripture-piece in needle-work, with a border of animals, pretty well done, the work of queen Mary during her confinement in Loch Leven Castle. The gallery is about 155 feet long, the top arched, divided into compartments filled with paintings in water-colours. The pieces represented are various kinds of huntings; that of Nimrod, and king James and his train, appear in every piece. Till the destruction of the abbey, the kings of Scotland were crowned here, sitting in the famous wooden chair which Edward I. transported to Westminster abbey, to the great mortification of the Scots, who looked upon it as a kind of palladium. Charles II. before the battle of Worcester, was crowned in the present chapel. The old pretender resided for some time at Scone in 1715; and his son paid it a visit in 1745.

SCOPARIA, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 40th order, *Personata*. The calyx is quadripartite; the corolla the same, and rotaceous; the capsule unilocular, bivalved, and polyspermous.

SCOPER, or SCUPPER HOLES, in a ship, are holes made through the sides, close to the deck, to carry off the water that comes from the pump.

SCOPOLIA, in botany: A genus of the octandria order, belonging to the gynandria class of plants; and in the natural method ranking under the 11th class, *Sarmentacea*. The calyx is diphyllous; the corolla quadrid; the antheræ coalesce in two columns, one placed above the other. Of this there is only one species, viz. the *Composita*.

SCORBUTUS, the SCURVY. See MEDICINE, n° 8.

SCORDIUM, or WATER-GERMANDER, in botany, a species of TEUCRIUM.

SCORIA, or DROSS, among metallurgists, is thecrement of metals in fusion; or, more determinately speaking, is that mass which is produced by melting metals and ores: when cold, it is brittle, and not dissoluble in water, being properly a kind of glass.

SCORIFICATION, in metallurgy, is the art of reducing a body, either entirely or in part, into scoria.

SCORPÆNA, in ichthyology, a genus belonging to the order of thoracici. The head is large and sharp; the eyes are near each other; there are teeth in the jaws, palate, and fauces; and there are seven rays in the membrane of the gill. The species are three, viz. the *porcus*, *scrofa*, and *horrida*. According to Mr Willoughby, the scorpæna is a fish of the anguilliform kind, called by the people of Cornwall *father-lasher*. *Scorpæna* is also the name of a fish caught in many parts of the Mediterranean. It seldom grows to more than a pound weight. Its body is long, but not flatted, and is moderately thick. Its head is extremely large, and is armed with prickles, and it grows gradually less from thence to the tail. The prickles about the head are accounted venomous, and the fishermen usually cut them off as soon as the fish is caught. Its tail is not forked, but rounded at the end. The belly and belly-fins are reddish.

SCORPIO, in zoology, a genus of insects belonging to the order of aptera. It has eight feet, besides two frontal claws; the eyes are eight in number, three on each side of the thorax, and two on the back. It has two claw-shaped palpi, a long jointed tail, with a pointed weapon at the extremity; it has likewise two combs situated betwixt the breast and abdomen. There are six species; all natives of southern climates.

Of all the classes of noxious insects the scorpion is the most terrible, whose shape is hideous, whose size among the insects is enormous, and whose sting is generally fatal. Happy for Britain, the scorpion is entirely a stranger among us! In several parts of the continent of Europe it is but too well known, though it seldom grows above four inches long: but in the warm tropical climates, it is seen a foot in length, and in every respect as large as a lobster, which it somewhat resembles in shape. There have been enumerated nine different kinds of this dangerous insect, including species and varieties, chiefly distinguished by their colour; there being scorpions yellow, brown, and ash-coloured; others that are the colour of rusty iron, green, pale yellow, black, claret colour, white, and grey. There are four principal parts distinguishable in this animal; the head, the breast, the belly, and the tail. The scorpion's head seems, as it were, jointed to the breast; in the middle of which are seen two eyes; and a little more forward, two eyes more, placed in the fore part of the head: those eyes are so small, that they are scarcely perceivable; and it is probable the animal has but little occasion for seeing. The mouth is furnished with two jaws: the undermost is divided into two, and the parts notched into each other, which serves the animal as teeth, and with which it breaks its food, and thrusts it into its mouth: these the scorpion can at pleasure pull back into its mouth, so that no part of them can be seen. On each side of the head are two arms, each composed of four joints; the last of which is large, with strong muscles, and made in the manner of a lobster's claw. Below the breast are eight articulated legs, each divided into six joints; the two hindmost of which are each provided with two crooked claws, and here and there covered with hair. The belly is divided into seven little rings; from the lowest

of which is continued a tail, composed of six joints, which are bristly, and formed like little globes, the last being armed with a crooked sting. This is that fatal instrument which renders this insect so formidable: it is long, pointed, hard, and hollow; it is pierced near the base by two small holes, through which, when the animal stings, it ejects a drop of poison, which is white, caustic, and fatal. The reservoir in which this poison is kept, is in a small bladder near the tail, into which the venom is distilled by a peculiar apparatus. If this bladder be greatly pressed, the venom will be seen issuing out through the two holes above-mentioned; so that it appears, that when the animal stings, the bladder is pressed, and the venom issues through the two apertures into the wound.

We have here given the common account of the sting of these noxious animals; but though we cannot pretend to determine between them, we shall lay before our readers the following observations from a treatise on *Tropical Diseases*, &c. by Dr Moseley of the Chelsea Hospital. "Galen justly observes, that a person who had not witnessed the fact, would not suppose that so small an injury as the sting of a scorpion, or the bite of a poisonous spider, could produce the violent effects which they do in the whole body. He says, the aculeus, or sting, of a scorpion ends in the minutest point: and has no perforation through which any poison can pass into the wound. Yet, he says, we must suppose the venom to be some spiritual substance, or moisture, in which a great power is concentrated in a small compass. Before I had an opportunity (says Dr Moseley) of examining this subject, my respect for the opinion of Galen made me doubt the accuracy of Leeuwenhoek, Redi, Mead, and others, who assert that there is an aperture near the cuspis of a scorpion's sting; and that through this aperture a liquid poison is injected when a wound is inflicted. Repeated experiments, with the best glasses, have never enabled me to discover any foramen, or opening, whatever."

The following cure may also be worth the reader's notice. "Mrs Pidgeley, at Kingston in Jamaica, in January 1781, was stung by a scorpion in the foot, above the little toe. The part became instantly red and painful; and soon after livid. The pain increased to great severity. Some rum was applied to the wound, on which the pain immediately left the foot, and passed up to the groin, with great agony. The pain still passed upwards, and diffused itself about the pit of the stomach, neck, and throat, attended with tremors, cold sweats, and languors. As the pain passed the abdomen, it occasioned a violent purging and fainting, which ceased on its advancing higher. I * was called to her, * Dr Moseley and gave her the following medicines, a few doses of which removed every symptom. She had been extremely ill for thirty-six hours. *R. Sal. Succin. ʒij; Camphor. gr. xij; Cinnabar. Antimon. gr. x; Confec. Card. q. s. fiant boli sex.* One of these was taken every hour, with four spoonfuls of the following mixture: *R. Aq. Mentha ʒ vij; Elix. Paregoric. ʒ ij; Syr. Croci ʒ ss; Misce.*"

There are few animals more formidable, or more truly mischievous, than the scorpion. As it takes refuge in a small place, and is generally found sheltering in houses, it must frequently sting those among whom

Scorpio. whom it resides. In some of the towns of Italy, and in France, in the province of Languedoc, it is one of the greatest pests that torments mankind: but its malignity in Europe is trifling, when compared to what the natives of Africa and the east are known to experience. In Batavia, where they grow twelve inches long, there is no removing any piece of furniture, without the utmost danger of being stung by them. Bosman assures us, that along the Gold Coast they are often found larger than a lobster; and that their sting is inevitably fatal. In Europe, however, they are by no means so large, so venomous, or so numerous. The general size of this animal does not exceed two or three inches; and its sting is very seldom found to be fatal. Maupertius, who made several experiments on the scorpion of Languedoc, found it by no means so invariably dangerous as had till then been represented. He provoked one of them to sting a dog, in three places of the belly where the animal was without hair. In about an hour after, the poor animal seemed greatly swollen, and became very sick: he then cast up whatever he had in his bowels; and for about three hours continued vomiting a whitish liquid. The belly was always greatly swollen when the animal began to vomit; but this operation always seemed to abate the swelling; which alternately swelled, and was thus emptied, for three hours successively. The poor animal after this fell into convulsions, bit the ground, dragged himself along upon his fore-feet, and at last died, five hours after being bitten. He was not partially swollen round the place which was bitten, as is usual after the sting of a wasp or a bee; but his whole body was inflated, and there only appeared a red spot on the places where he had been stung.

Some days after, however, the same experiment was tried upon another dog, and even with more aggravated cruelty: yet the dog seemed no way affected by the wounds: but, howling a little when he received them, continued alert and well after them; and soon after was set at liberty, without showing the smallest symptoms of pain. So far was this poor creature from being terrified at the experiment, that he left his own master's house, to come to that of the philosopher, where he had received more plentiful entertainment. The same experiment was tried by fresh scorpions upon seven other dogs, and upon three hens; but not the smallest deadly symptom was seen to ensue. From hence it appears, that many circumstances, which are utterly unknown, must contribute to give efficacy to the scorpion's venom. Whether its food, long fasting, the season, the nature of the vessels it wounds, or its state of maturity, contribute to or retard its malignity, is yet to be ascertained by succeeding experiment. In the trials made by our philosopher, he employed scorpions of both sexes, newly caught, and seemingly vigorous and active. The success of this experiment may serve to shew, that many of those boasted antidotes which are given for the cure of the scorpion's sting, owe their success rather to accident than their own efficacy. They only happened to cure when their sting was no way dangerous; but in cases of actual malignity, they might probably be utterly unserviceable.

The scorpion of the tropical climates being much larger than the former, is probably much more venomous. Helbigius, however, who resided for many years

in the east, assures us, that he was often stung by the scorpion, and never received any material injury from the wound: a painful tumor generally ensued; but he always cured it by rubbing the part with a piece of iron or stone, as he had seen the Indians practise before him, until the flesh became insensible. Seba, Moore, and Bosman, however, give a very different account of the scorpion's malignity: and assert, that, unless speedily relieved, the wound becomes fatal.

It is certain, that no animal in the creation seems endued with such an irascible nature. They have often been seen, when taken and put into a place of security, to exert all their rage against the sides of the glass-vessel that contained them. They will attempt to sting a stick when put near them; and attack a mouse or a frog, while those animals are far from offering any injury. Maupertius put three scorpions and a mouse into the same vessel together, and they soon stung the little animal in different places. The mouse, thus assaulted, stood for some time upon the defensive, and at last killed them all, one after another. He tried this experiment, in order to see whether the mouse, after it had killed, would eat the scorpions; but the little quadruped seemed satisfied with the victory, and even survived the severity of the wounds it had received. Wolkamer tried the courage of the scorpion against the large spider, and inclosed several of both kinds in glass vessels for that purpose. The success of this combat was very remarkable. The spider at first used all its efforts to intangle the scorpion in its web, which it immediately began spinning; but the scorpion rescued itself from the danger, by stinging its adversary to death: it soon after cut off, with its claws, all the legs of the spider, and then sucked all the internal parts at its leisure.—If the scorpion's skin had not been so hard, Wolkamer is of opinion that the spider would have obtained the victory; for he had often seen one of these spiders destroy a toad.

The fierce spirit of this animal is equally dangerous to its own species; for scorpions are the cruellest enemies to each other. Maupertius put about 100 of them together in the same glass; and they scarce came into contact when they began to exert all their rage in mutual destruction: there was nothing to be seen but one universal carnage, without any distinction of age or sex; so that in a few days there remained only 14, which had killed and devoured all the rest.

But their unnatural malignity is still more apparent in their cruelty to their offspring. He inclosed a female scorpion, big with young, in a glass vessel, and she was seen to devour them as fast as they were excluded: there was but one only of the number that escaped the general destruction, by taking refuge on the back of its parent; and this soon after revenged the cause of its brethren, by killing the old one in its turn.

Such is the terrible and unrelenting nature of this insect, which neither the bonds of society nor of nature can reclaim: it is even asserted, that, when driven to an extremity, the scorpion will often destroy itself. The following experiment was ineffectually tried by Maupertius: "But," says Mr Goldsmith, "I am so well assured of it by many eye-witnesses, who have seen it both in Italy and America, that I have no doubt remaining of its veracity. A scorpion, newly caught,

scorpio, is placed in the midst of a circle of burning charcoal, and thus an egress prevented on every side: the scorpion, as I am assured, runs for about a minute round the circle, in hopes of escaping; but finding that impossible, it stings itself on the back of the head; and in this manner the undaunted suicide instantly expires."

It is happy for mankind that these animals are thus destructive to each other; since otherwise they would multiply in so great a degree as to render some countries uninhabitable. The male and female of this insect are very easily distinguishable; the male being smaller and less hairy. The female brings forth her young alive, and perfect in their kind. Redi having bought a quantity of scorpions, selected the females, which, by their size and roughness, were easily distinguishable from the rest; and putting them in separate glass vessels, he kept them for some days without food. In about five days one of them brought forth 38 young ones, well-shaped, and of a milk-white colour, which changed every day more and more into a dark rusty hue. Another female, in a different vessel, brought forth 27 of the same colour; and the day following the young ones seemed all fixed to the back and belly of the female. For near a fortnight all these continued alive and well: but afterwards some of them died daily; until, in about a month, they all died except two.

Were it worth the trouble, these animals might be kept living as long as curiosity should think proper. Their chief food is worms and insects; and upon a proper supply of these, their lives might be lengthened to their natural extent. How long that may be, we are not told; but if we may argue from analogy, it cannot be less than seven or eight years; and perhaps, in the larger kind, double that duration. As they have somewhat the form of the lobster, so they resemble that animal in casting their shell, or more properly their skin; since it is softer by far than the covering of the lobster, and set with hairs, which grow from it in great abundance, particularly at the joinings. The young lie in the womb of the parent, each covered up in its own membrane, to the number of 40 or 50, and united to each other by an oblong thread, so as to exhibit altogether the form of a chaplet.

Such is the manner in which the common scorpion produces its young: but there is a scorpion of America produced from the egg, in the manner of the spider. The eggs are no longer than pins points; and they are deposited in a web, which they spin from their bodies, and carry about with them, till they are hatched. As soon as the young ones are excluded from the shell, they get upon the back of the parent, who turns her tail over them, and defends them with her sting. It seems probable, therefore, that captivity produces that unnatural disposition in the scorpion which induces it to destroy its young; since, at liberty, it is found to protect them with such unceasing assiduity. For the various modes of preventing the fatal consequences of the bites of these and other noxious animals, we refer to Moseley's treatise above quoted.

SCORPIO, *Scorpion*, in astronomy, the eighth sign of the zodiac denoted by the character ♏ . See ASTRONOMY.

SCORPIO Fly. See PANORPA.

SCORPIURUS, CATERpillars, in botany: A genus of the decandria order, belonging to the diadelphia

class of plants; and in the natural method ranking under the 32d order, *Papilionacea*. The legumen is contracted by incisions on the inside betwixt every two seeds, revolved round.

There are four species; the most remarkable of which is the *vermiculata*, a native of Italy and Spain. It is an annual plant, with trailing herbaceous stalks, which at each joint have a spatular-shaped leaf with a long foot-stalk. From the wings of the leaves come out the foot-stalks of the flowers, which sustain at the top one yellow butterfly flower, succeeded by a thick twisted pod having the size and appearance of a larger caterpillar, from whence it had this title. This has long been preserved in the gardens of this country, more on account of its odd shape than for any great beauty. It is propagated by sowing the seeds on a bed of light earth; and when the plants come up, they must be kept free from weeds and thinned, so that there may be a foot distance between them.

SCORZONERA, Viper-GRASS, in botany: A genus of the polygamia æqualis order, belonging to the syn-genefia class of plants; and in the natural method ranking under the 49th order, *Compositæ*. The receptacle is naked; the pappus plumy; the calyx imbricated, with scales membranaceous on their margins.

The most remarkable species is the *hispanica*, or common scorzonera, which is cultivated in the gardens of this country, both for culinary and medicinal purposes. The root is carrot-shaped, about the thickness of a finger, covered with a dark brown skin, is white within, and has a milky juice. The stalk rises three feet high, is smooth, branching at the top, and garnished with a few narrow leaves, whose base half embrace the stalk. The flowers are of a bright yellow colour, and terminate the stalks in scaly empalements composed of many narrow tongue-shaped hermaphrodite florets lying imbricatim over each other like the scales of fish, and are of a bright yellow colour. After these are decayed, the germen, which sits in the common empalements, turns to oblong cornered seeds, having a roundish ball of feathered down at the top. This plant is propagated by seeds; and must be carefully thinned and kept free from weeds, otherwise the plants will be weak.

The roots of scorzonera were formerly much celebrated for their alexipharmic virtues, and for throwing out the small-pox; but have now almost entirely lost their character: however, as they abound with an acrid juice, they may sometimes be of use for strengthening the viscera, and promoting the fluid secretions.

SCOT, a customary contribution laid upon all subjects, according to their abilities. Whoever were assessed in any sum, though not in equal proportions, were said to pay scot and lot.

SCOT (Michael) of Balwirie, a learned Scottish author of the 13th century. This singular man made the tour of France and Germany; and was received with some distinction at the court of the emperor Frederic II. Having travelled enough to gratify his curiosity or his vanity, he returned to Scotland, and gave himself up to study and contemplation. He was skilled in languages; and, considering the age in which he lived, was no mean proficient in philosophy, mathematics, and medicine. He translated into Latin from the Arabic, the history of animals by the celebrated physician

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fician Avicenna. He published the whole works of Aristotle, with notes, and affected much to reason on the principles of that great philosopher. He wrote a book concerning *The Secrets of Nature*, in which he treats of generation, physiognomy, and the signs by which we judge of the temperaments of men and women. We have also a tract of his *On the Nature of the Sun and Moon*. He there speaks of the *grand operation*, as it is termed by alchymists, and is exceedingly solicitous about the *projected powder*, or the *philosopher's stone*. He likewise published what he calls *Mensa Philosophica*, a treatise replete with astrology and chiromancy. He was much admired in his day, and was even suspected of magic; and had Roger Bacon and Cornelius Agrippa for his panegyrists.

SCOT (Reginald), a judicious writer in the 16th century, was the younger son of Sir John Scot of Scot's-hall, near Smeeth in Kent. He studied at Hart-hall in the university of Oxford; after which he retired to Smeeth, where he lived a studious life, and died in 1599. He published, *The perfect Platform of a Hop-garden*; and a book intitled, *The Discovery of Witchcraft*; in which he showed that all the relations concerning magicians and witches are chimerical. This work was not only censured by king James I. in his *Demonology*, but by several eminent divines; and all the copies of it that could be found were burnt.

SCOTAL, or SCOTALE, is where any officer of a forest keeps an ale-house within the forest, by colour of his office, making people come to his house, and there spend their money for fear of his displeasure. We find it mentioned in the charter of the forest, cap. 8. "Nullus forrestarius faciat *Scotallas*, vel garbas colligat, vel aliquam collectam faciat," &c. *Manwood*, 216. —The word is compounded of *scot* and *ale*, and by transposition of the words is otherwise called *ale/shot*.

SCOTER. See ANAS, n° 6.

NOVA SCOTIA, or NEW SCOTLAND, one of the British settlements in North America, situated between 43° and 49° north latitude, and between 60° and 67° west longitude, is bounded by the river St Laurence on the north; by the gulph of St Laurence and the Atlantic ocean on the east; by the same ocean on the south; and by Canada and New England on the west.—In the year 1784, this province was divided into two governments. The province and government now styled *New Brunswick* is bounded on the westward of the mouth of the river St Croix, by the said river to its source, and by a line drawn due north from thence to the southern boundary of the province of Quebec, to the northward by the said boundary as far as the western extremity of the Bay de Chaleurs, to the eastward by the said bay to the gulph of St Laurence to the bay called *Bay Verte*, to the south by a line in the centre of the Bay of Fundy, from the river St Croix aforesaid, to the mouth of the Musquat river, by the said river to its source, and from thence by a due east line across the Isthmus into the Bay Verte, to join the eastern lot above described, including all islands within six leagues of the coast.

The chief rivers are, the river of St Laurence, which forms the northern boundary. The rivers *Risgouche* and *Nipisiguit* run from west to east, and fall into the bay of St Laurence. The rivers of St John, *Passamagundi*, *Penobscot*, and St Croix, which run from

north to south, fall into Fundy Bay, or the sea a little to the eastward of it.

The seas adjoining to it are, the Atlantic ocean, Fundy Bay, and the gulph of St Laurence. The lesser bays are, *Chenigto* and *Green Bay* upon the isthmus which joins the north part of Nova Scotia to the south; and the Bay of Chaleurs on the north-east; the Bay of Chedibucto on the south-east; the Bay of the Islands, the Ports of Bart, Chebucto, Prosper, St Margaret, La Heve, port Maltois, port Rylignol, port Vert, and port Joly, on the south; port La Tour on the south-east; port St Mary, Anapolis, and Minas on the south side of Fundy Bay, and port Roseway, now the most populous of all.—The chief capes are, Cape Portage, Ecoumenac, Tourmentin, Cape Port, and Epis, on the east; Cape Fogerie and Cape Canceau on the south-east; Cape Blanco, Cape Vert, Cape Theodore, Cape Dore, Cape La Heve, and Cape Negro, on the south; Cape Sable and Cape Fourche on the south-west.—The lakes are very numerous, but have not yet received particular names.

The face of the country, when viewed at a distance, presents a pleasingly variegated appearance of hills and valleys, with scarcely any thing like mountains to interrupt the prospect, especially near the sea. A nearer approach discovers those sublime and beautiful scenes which are so far superior to the gaudy embellishments of art. Immense forests, formed of the tallest trees, the growth of ages, and reaching almost to the clouds, everywhere cover and adorn the land: Their leaves falling in autumn, add continually to that crust of moss, vegetables, and decaying wood, that has for many centuries been accumulating; whilst the rays of the sun, unable to pierce the thick shade which everywhere covers the ground, leaves it in a perpetual state of damp and rottenness; a circumstance which contributes, in no small degree, to increase the sharpness of the air in winter.

The clouds, flying over the higher grounds, which are covered in every direction with one vast forest, and arrested by the attraction of the woods, fill the country with water. Every rock has a spring, and every spring causes a swamp or morass, of greater or less extent in proportion to its cause: hence it is, that travelling becomes almost impracticable in summer, and is seldom attempted, but in the fall of the year, when winter begins to set in, and the ground is already frozen.

The land throughout the peninsula is in no part mountainous, but frequently rises into hills of gradual ascent, everywhere clothed with wood. From these arise innumerable springs and rivulets, which not only fertilize and adorn the country, but have formed, in the midst of it, a large lake or piece of fresh water, which is of various depths, and of which, however, little more is known, than that it has upon its borders very large tracts of meadow-land highly improveable. That part of the province which is beyond the Bay of Fundy, and extends to the river St Laurence, rises also gradually as we advance from the sea quite to Canada, but is, however, hardly anywhere mountainous. Its lands are for the most part very rich, particularly at a distance from the sea; and its woods abound with the hardest and loftiest trees.

Though this country, like Canada, is subject to long and

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and severe winters, succeeded by sudden and violent heats, often much greater than what are felt in the same latitudes in Europe, yet it cannot be accounted an unhealthy climate. The air in general in winter is very sharp, frosty, and dry; the sky serene and unclouded, by which every kind of exercise adapted to the season is rendered pleasant and agreeable. The fogs are frequent near the sea, but seldom spread themselves to any distance in land.

The winter commonly breaks up with heavy rains, and the inhabitants experience hardly any of the delights of the spring, which in England is accounted the most agreeable season of the year. From a lifeless and dreary appearance, and the gloomy scenes of winter wrapped around the vegetable world, the country throws off its disgusting attire, and in a few days exhibits a grand and pleasant prospect; the vegetation being inconceivably rapid, nature passes suddenly from one extreme to another, in a manner utterly unknown to countries accustomed to a gradual progression of seasons. And, strange as it may appear, it is an acknowledged fact, a fact which furnishes a certain proof of the purity of the air, that these sudden changes seldom, if ever, affect the health of strangers or Europeans.

In this country agriculture has yet made but small progress. Nova Scotia is almost a continued forest, producing every kind of wood which grows in the neighbouring provinces of New England. Four fifths of all the lands in the province are covered with pines, which are valuable not only for furnishing masts, spars, lumber for the sugar plantations, and timber for building, but for yielding tar, pitch, and turpentine, commodities which are all procured from this useful tree, and with which the mother-country may in a few years easily be supplied.

All the various species of birch, beech, and maple, and several sorts of spruce, are found in all parts in great abundance; as also numerous herbs and plants, either not common to, or not known in, England. Amongst these none is more plentiful than *sarsaparilla*, and a plant whose root resembles rhubarb in colour, taste, and effects; likewise the Indian or mountain tea, and maiden-hair, an herb much in repute for the same purpose, with shrubs producing strawberries, raspberries, and many other pleasant fruits, with which the woods in summer are well stored: Of these wild productions the cherries are best, though smaller than ours, and growing in bunches somewhat resembling grapes. The *sassafras* tree grows plentifully in common with others; but amongst them none is more useful to the inhabitants than a species of maple, distinguished by the name of the *sugar tree*, as affording a considerable quantity of that valuable ingredient. See SUGAR.

Amongst the natural productions of Nova Scotia, it is necessary to enumerate their iron-ore, which is supposed equally good with that found in any part of America.

Lime-stone is likewise found in many places; it is extremely good, and is now much used for building: independent of which, it gives the farmers and landholders a great advantage for improving the ground, as it is found by experience to be one of the most approved things in the world for that purpose.

Several of the useful and most common European fruits have been planted in many places; so that the

province now produces great quantities of apples, some pears, and a few plums, which are all good of their kind, especially the former. The smaller fruits, such as currants, gooseberries, &c. grow to as great perfection as in Europe; and the same may be said of all the common and useful kinds of garden plants. Among these their potatoes have the preference, as being the most serviceable in a country abounding with fish; and indeed they are not to be exceeded in goodness by any in the world. The maize, or Indian corn, is a native of much warmer climates; and, though planted here, never arrives at more than two-thirds of its natural bigness; a defect which arises as well from the shortness of the summer as the gravelly nature of the soil. Tobacco may likewise be cultivated with ease in Nova Scotia, as it is already everywhere in Canada, from Lake Champlain to the isle of Orleans, for the purpose of internal consumption.

This country is not deficient in the animal productions of the neighbouring provinces, particularly deer, beavers, and otters. Wild fowl, and all manner of game, and many kinds of European fowls and quadrupeds, have from time to time been brought into it and thrive well. At the close of March the fish begin to spawn, when they enter the rivers in such shoals as are incredible. Herrings come up in April, and the sturgeon and salmon in May. But the most valuable appendage of New Scotland is the Cape Sable coast, along which is one continued range of cod-fishing banks and excellent harbours. This fishery employs a great number of men, in some seasons not less than 10,000, when 120,000 quintals will be caught, of which 40,000 may be exported. These, at the lowest price, must bring into the colony L. 26,000 Sterling, either in cash or in commodities necessary to the inhabitants.

Notwithstanding the comparatively uninviting appearance of this country, it was here that some of the first European settlements were made. The first grant of lands in it was given by James I. to his secretary Sir William Alexander, from whom it had the name of *Nova Scotia* or *New Scotland*. Since that period it has frequently changed hands from one private proprietor to another, and from the French to the English nation backward and forward.

It was in 1604 that the French first settled in Nova Scotia, to which they gave the name of *Acadia*. Instead of fixing towards the east of the peninsula, where they would have had larger seas, an easy navigation, and plenty of cod, they chose a small bay, afterwards called French Bay, which had none of these advantages. It has been said, that they were invited by the beauty of Port Royal, where a thousand ships may ride in safety from every wind, where there is an excellent bottom, and at all times four or five fathoms of water, and eighteen at the entrance. It is more probable that the founders of this colony were led to choose this situation, from its vicinity to the countries abounding in furs, of which the exclusive trade had been granted to them. This conjecture is confirmed by the following circumstance: that both the first monopolizers, and those who succeeded them, took the utmost pains to divert the attention of their countrymen, whom an unsettled disposition, or necessity, brought into these regions, from the clearing of the woods, the breeding of cattle, fishing, and every kind of culture; choosing rather to

engage the industry of these adventurers in hunting or in trading with the savages.

This colony was yet in its infancy when the settlement, which has since become so famous under the name of *New England*, was first established in its neighbourhood. The rapid success of the plantations in this new colony did not much attract the notice of the French. This kind of prosperity did not excite any jealousy between the two nations. But when they began to suspect that there was likely to be a competition for the beaver trade and furs, they endeavoured to secure to themselves the sole property of it, and were unfortunate enough to succeed.

At their first arrival in Acadia, they had found the peninsula, as well as the forests of the neighbouring continent, peopled with small savage nations, who went under the general name of *Abenakis*. Though equally fond of war as other savage nations, they were more sociable in their manners. The missionaries easily insinuating themselves among them, had so far inculcated their tenets, as to make enthusiasts of them. At the same time that they taught them their religion, they inspired them with that hatred which they themselves entertained for the English name. This fundamental article of their new worship, being that which made the strongest impression on their senses, and the only one that favoured their passion for war, they adopted it with all the rage that was natural to them. They not only refused to make any kind of exchange with the English, but also frequently disturbed and ravaged the frontiers of that nation.

This produced perpetual hostilities between the New Englanders and the French settlers in Acadia, till that province was, at the peace of Utrecht, for ever ceded to the English, who seemed not for a long time to discover the value of their new acquisition. They restored to it its ancient name of *Nova Scotia*; and having built a slight fortification at Port-Royal, which they called *Annapolis* in honour of Queen Anne, they contented themselves with putting a very small garrison into it. In process of time, however, the importance of Nova Scotia to the commerce of Great Britain began to be perceived; and at the peace of 1749, the ministry offered particular advantages to all persons who chose to go over and settle in Acadia. Every soldier, sailor, and workman, was to have 50 acres of land for himself, and ten for every person he carried over in his family. All non-commissioned officers were allowed 80 for themselves, and 15 for their wives and children; ensigns 200; lieutenants 300; captains 400; and all officers of a higher rank 600; together with 30 for each of their dependents. The land was to be tax free for the first ten years, and never to pay above one livre two sols six deniers* for fifty acres. Beside this the government engaged to advance or reimburse the expences of passage, to build houses, to furnish all the necessary instruments for fishery or agriculture, and to defray the expences of subsistence for the first year. These encouragements determined 3750 persons, in the month of May 1749, to go to America, in hopes of bettering their fortune,

*About 18
Sterling.

Thus encouraged, the province of Nova Scotia began to flourish, though in 1769 it sent out only 14 vessels and 148 boats, which together amounted to 7324 tons, and received 22 vessels and 120 boats, which to-

gether made up 7006 tons. They constructed three sloops, which did not exceed 110 tons burden. Their exportation for Great Britain and for the other parts of the globe did not amount to more than 729,850 livres 12 sols 9 deniers†. Continuing, however, true to its allegiance when the other colonies threw off the dominion of Great Britain, it has now become a place of great consequence both to the mother-country and the West Indies. Its shipping and seamen are rapidly increasing, as well as its produce, which affords the pleasing prospect of being able to supply itself with all the necessaries of life. The number of persons who have abandoned their habitations in the more southern provinces, and settled either there or in Canada, cannot be estimated, by the most moderate calculation, at less than 80,000; and it is without doubt the most convenient in point of situation of any province in America for a maritime power of Europe to be possessed of.

SCOTIA, in architecture, a semicircular cavity or channel between the torus in the bases of columns.

SCOTISTS, a sect of school-divines and philosophers, thus called from their founder *J. Duns Scotus*, a Scottish cordelier, who maintained the immaculate conception of the virgin, or that she was born without original sin, in opposition to Thomas Aquinas and the Thomists.

As to philosophy, the Scotists were, like the Thomists, Peripatetics (see PERIPATETICS); only distinguished by this, that in each being, as many different qualities as it had, so many different formalities did they distinguish; all distinct from the body itself, and making as it were so many different entities; only these were metaphysical, and as it were superadded to the being. The Scotists and Thomists likewise disagreed about the nature of the divine co-operation with the human will, the measure of divine grace that is necessary to salvation, and other abstruse and minute questions, which it is needless to enumerate.

SCOTLAND, the country of the Scots, or that part of Great Britain lying to the north of the Tweed; is situated between the 54th and 59th degrees of north latitude, and extends in length about 278 miles, and in some places near 180 in breadth; containing an area of 27,794 miles. On the south it is bounded by England; on the north, east, and west, by the Deucalionian, German, and Irish seas.

It is extremely difficult to give any satisfactory account of the origin of the appellation of *Scots*, from which the country has derived its name. It has puzzled the most eminent antiquaries, whose conjectures serve rather to perplex than to clear up the difficulty. Nor is this to be wondered at, when Varro and Dionysius could not agree about the etymon of *Italia*, nor Plutarch and Solinus about that of *Rome*. All that we know with any degree of certainty, concerning the appellation of *Scot*, amounts to this—That it was at first a term of reproach, and consequently framed by enemies, rather than assumed by the nation distinguished by that name. The Highlanders, who were the genuine descendants of the ancient Scots, are absolutely strangers to the name, and have been so from the beginning of time. All those who speak the Gaelic language call themselves *Albanich* or *Gael*, and their country *Alba* or *Gael-dochd*.

The Picts, who possessed originally the northern and eastern,

and eastern, and in a latter period also the more southern, division of North Britain, were at first more powerful than the Caledonians of the west. It is therefore probable, that the Picts, from a principle of malevolence and pride, were ready to traduce and ridicule their weaker neighbours of Argyle. These two nations spoke the same language, the Gaelic. In that language *Scot*, or *Scode*, signifies a corner or small division of a country. Accordingly, a corner of north Britain is the very name which Giraldus Cambrensis gives the little kingdom of Argyle, which the six sons of Muredus king of Ulster were said, according to his information, to have erected in Scotland. *Scot* in Gaelic is much the same with *little* or *contemptible* in English; and *Scotlan*, literally speaking, signifies a *small flock*; metaphorically, it stands for a small body of men. (*Dr Macpherson's Dissert.*)

Others observe, that in the same language the word *Scuit* signifies a *wanderer*, and suppose that this may have been the origin of the name of *Scot*; a conjecture which they think is countenanced by a passage in Ammianus Marcellinus (l. xxvii.), who characterizes the men by the epithet of *roaming*; "*per diversa vagantes.*" (*Mr Macpherson. and Mr Whitaker.*)

All that we can say is, that for some one of the reasons couched under the above disparaging epithets, their malicious or sneering neighbours, the Picts or the Britons, may have given the appellation of *Scots* to the ancestors of the Scottish nation.

At what time the inhabitants of the west of Scotland came to be distinguished by this name is uncertain. Porphyrius the philosopher is the first who mentions them, about the year of the Christian era 267; and towards the middle of the 4th century we find them mentioned with other British nations by Am. Marcellinus, in the passage above referred to.

The origin of the Scots has been warmly disputed by many antiquaries of note; particularly by Mr Macpherson and Mr Whitaker. The first contends, that they are of Caledonian, the latter, that they are of Irish extraction. Each supports his position with such arguments and authorities, that an impartial inquirer is almost at a loss which of their opinions he ought to espouse. What appears most probable is, that they are both partly in the right and partly in the wrong. —The Scots seem to have been originally descended from Britons of the south, or from Caledonians, who being pressed forward by new colonies from Gaul, till they came to the western shore of Britain, passed over from thence into Ireland, probably about 100 years before the Christian era. About the year of Christ 320, they returned again into Britain; or at least a large colony of them, under the conduct of Fergus, and settled on the western coasts of Caledonia, from whence they had formerly migrated. As early as the year 340, we find them associated with the Picts in their expeditions to the Roman province; and for 90 or 100 years after, their ravages are frequently mentioned by the Roman and British writers. (*Whitaker's hist. of the Britons, 284.*)

The territory of the ancient Scots, before the annexation of Pictavia, comprehended all that side of Caledonia which lies along the north and western ocean, from the frith of Clyde to the Orkneys. Towards the east, their dominions were divided from the Pictish

territories by those high mountains which run from Dumbarton to the frith of Tain.—In process of time, the Scots, under the reign of Kenneth the son of Alpin, became so powerful as to subdue entirely their neighbours the Picts, and gave their own denomination to all Caledonia, Pictavia, and Valentia; all which are still comprehended under the general name of *Scotland*.

Like those of all other nations, the historians of Scotland assume too great an antiquity for their countrymen; however, they are much less extravagant in this respect than many others. By them the reign of Fergus, the first Scots monarch, is placed in 330 B. C. He was the son of Ferchard an Irish prince; and is said to have been called into Scotland by the Caledonians, to assist them against the southern Britons, with whom they were then at war. Having landed on one of the Æbudæ or western isles, he had a conference with the Caledonians, whose language and manners he found to be the same with those of his countrymen. Having then landed in Scotland, and taken the field at the head of his new allies, he engaged the Britons under their king Coilus. Victory declared in favour of the Scots; Coilus was defeated and killed; and from him the province of Kyle first received its name. After this Fergus was declared king of the Scots, with the solemnity of an oath. But he did not long enjoy his new dignity: for having been recalled to Ireland to quiet some commotions there, he was drowned, by a sudden tempest, on his return, at a place in Ireland called from him *Knock-Fergus*, or *Carrick-Fergus*; i. e. Fergus's Rock.

Fergus was succeeded by his brother Feritharis, to the prejudice of his two sons Ferlegus and Mainus. This, we are told by the ancient Scottish writers, was done in conformity to a law, by which it was ordained; that whilst the children of their kings were infants, one of their relations who was reckoned the most fit for the government should be raised to the throne; but that after his death the sovereignty should return to the sons of the former king. This was the case at present; however, Ferlegus, impatient for the crown, made a formal demand of it from his uncle. The dispute being referred to an assembly of the states, Feritharis was confirmed on the throne; and Ferlegus would have been condemned for sedition, had not his uncle interposed. However, he was imprisoned; but having made his escape, he fled first to the Picts, and then to the Britons, in order to excite them against Feritharis. With both he failed in accomplishing his purpose: but, in the mean time, his uncle being stabbed in his bed, the suspicion fell upon Ferlegus, who was thereupon set aside from the succession, and died in obscurity, the throne being conferred upon his brother Mainus.

The reigns of Mainus, Dornadil, and Nothat, afford nothing remarkable, excepting that Dornadil, who was a great hunter, instituted the laws of hunting in this country. Nothat was killed in a battle with Reuther his nephew; upon which the latter was immediately invested with the sovereignty. A bloody war ensued, in which both parties were reduced to the last extremity; and glad at length to conclude a peace. The fate of Reuther is not known; but it is generally supposed that he ended his life in the year 187 B. C.

The reigns of Reutha, Thereus, Jafina, and Finnan,

Scotland. afford no remarkable transactions, excepting that under the last we find the first beginnings of the Scottish parliament; as he enacted, that kings should do nothing without the consent of their grand council.—After him followed Durlus, Even, and Gillus, whose reigns afford nothing of consequence. Even II. the nephew of Finnan, who succeeded Gillus, is said to have built the towns of Innerlochy and Inverness. He overcame Belus king of the Orkneys, who had invaded Scotland; and was succeeded by his son Eder, in whose time Julius Cæsar invaded the southern parts of this island. Eder is said to have assisted the Britons against the common enemy. He was succeeded, after a reign of 48 years, by his son Even III. who is represented as a monster of cruelty and lust. Not content with having 100 noble concubines of his own, he made a law that a man might marry as many wives as he could maintain; and that the king should have the first night with every noble bride, and the nobles the like with the daughters of their tenants. Nor was he less remarkable for his cruelty and rapaciousness, which at last occasioned a rebellion; and Even was dethroned, imprisoned, and put to death.

6
A scandalous law concerning marriages.

7
Invasion of Scotland by Agricola.

We meet with nothing memorable in the history of Scotland from this time to that of Agricola, excepting that the famous Caractacus, who was carried prisoner to Rome, is said to have been one of the Scottish monarchs; which, however, seems not very probable, as the Romans in his time had not penetrated near so far as Scotland. The invasion of Agricola happened during the reign of Corbred, called by the Roman historians *Galgacus*. Agricola having completed the conquest of the southern parts, and in a great measure civilized the inhabitants, formed a like plan with regard to Scotland. It is probable, that at this time the Caledonians or Scots were rendered more formidable than ever they had been, by the accession of great numbers from the south; for though the Romans had civilized the greatest part, it cannot be doubted that many of those savage warriors, disdaining the pleasures of a peaceable life, would retire to the northward, where the martial disposition of the Scots would better suit their inclination. The utmost efforts of valour, however, were not proof against the discipline of the Roman troops, and the experience of their commander. In the third year Agricola had penetrated as far as the river Tay; but the particulars of his progress are not recorded. The following year he built a line of forts between the friths of Forth and Clyde, to exclude the Caledonians from the southern parts of the island; and the year after, he subdued those parts which lay to the south and west of his forts, namely, the counties of Galloway, Cantyre, and Argyle, which at that time were inhabited by a people called *Cangi*, though some historians place these as far south as Cheshire in England, and the north part of Wales. This supposition, however, can scarcely be admitted, when we consider that Tacitus expressly informs us, that the people whom Agricola conquered had never before been known to the Romans.

Agricola still pursued the same prudent measures by which he had already secured the possession of such a large tract of country, that is, advancing but slowly, and building forts as he advanced, in order to keep the people in obedience. The Scots, though commanded

by their king, who is said to have been well acquainted with the manner of fighting and discipline of the Romans, were yet obliged to retreat; but at last, finding that the enemy made such progress as endangered the subjugation of the whole country, he resolved to cut off their communication with the southern parts, and likewise to prevent all possibility of a retreat by sea. Agricola, though solicited by some of his officers, refused to retreat; but divided his troops into three bodies, having a communication with each other. Upon this, Galgacus resolved to attack the weakest of the three, which consisted only of the ninth legion, and lay at that time, as is said, at a place called *Lochore*, about two miles from Loch-Leven in Fife. The attack was made in the night; and as the Romans were both unprepared and inferior in number, the Scots penetrated into the heart of their camp, and were making a great slaughter, when Agricola detached some light-armed troops to their assistance; by whom the Caledonians in their turn were routed, and forced to fly to the marshes and inaccessible places, where the enemy could not follow them.

This engagement has been magnified by the Roman historians into a victory, though it can scarce be admitted from the testimonies of other historians. The Romans, however, certainly advanced very considerably, and the Scots as constantly retreated, till they came to the foot of the Grampian mountains, where the Caledonians resolved to make their last stand. In the eighth year of the war, Agricola advanced to the foot of the mountains, where he found the enemy ready to receive him. Tacitus has given us a speech of Galgacus, which he has undoubtedly fabricated for him, in which he sets forth the aspiring disposition of the Romans, and encourages his countrymen to defend themselves vigorously, as knowing that every thing valuable was at stake. A desperate engagement accordingly ensued. In the beginning, the Britons had the advantage, by the dexterous management of their bucklers: but Agricola having ordered three Tungrian and two Batavian cohorts, armed with short swords, and embosomed bucklers terminating in a point, to attack the Scots, who were armed with long swords, the latter soon found these weapons useless in a close encounter; and as their bucklers only covered a small part of their bodies, they were easily cut in pieces by their adversaries. The most forward of their cavalry and charioteers fell back upon their infantry, and disordered the centre: but, the Britons endeavouring to out-flank their enemies, the Roman general opposed them with his horse; and the Caledonians were at last routed with great slaughter, and forced to fly into the woods, whither the Romans pursued with so little caution, that numbers of them were cut off. Agricola, however, having ordered his troops to proceed more regularly, prevented the Scots from attacking and cutting off his men in separate parties, as they had expected; so that this victory proved the greatest stroke to the Caledonians that they had hitherto received. This battle is supposed by some to have been fought in Strathern, half a mile south from the kirk of Comrie; but others imagine the place to have been near Fortingal-Camp, a place somewhat farther on the other side of the Tay.

Great as this victory was, it seems not to have been pro-

Scotland

Great
tory
by the
mans.

productive of any solid or lasting advantage to the Romans; since we find that Agricola, instead of putting an end to the war by the immediate conquest of all Caledonia, retreated into the country of the Foresti, commonly supposed to be Forfarshire, though others imagine it to have been the county of Fife. Here he received hostages from part of the Caledonians; and ordered part of his fleet to sail round Britain, that they might discover whether it was an island or a continent. The Romans no sooner had left that part of the country, than the Caledonians demolished all the forts they had raised: and Agricola being soon after recalled by Domitian, the further progress of the Roman arms was stopped; Galgacus proving superior to any of the successors of that general.

From the time of Agricola to that of Adrian, we know little of the affairs of Scotland, excepting that during this interval the Scots must have entirely driven the Romans out of their country, and reconquered all that tract which lay between Agricola's chain of forts and Carlisle on the west, and Newcastle or Tinnmouth-Bar on the east; which Adrian, on visiting Britain, thought proper to fix as the northern boundary of the Roman dominions. Here he built a wall of turf between the mouth of the Tyne and the Solway frith, with a view to shut out the barbarians; which, however, did not answer the purpose, nor indeed could it be thought to do so, as it was only built of turf, and guarded by no more than 18,000 men, who could not be supposed a sufficient force to defend such an extent of fortification.

On the departure of Adrian, he left Julius Severus as his lieutenant: but this man, though one of the greatest commanders of his age, did not carry his arms to the northward of Adrian's wall; and this long interval of peace gave so much security to Mogold the Scottish monarch, that he degenerated into a tyrant, and was murdered by some of his noblemen. The only instance of his tyranny which is produced, however, is a law by which it was enacted, that the estates of such as were condemned should be forfeited to his exchequer, without any part thereof being allotted to their wives and children; an act which subsists almost in its full force to this day in Great Britain and the best regulated European governments.

In the reign of Antoninus Pius, the proprætor Lollius Urbicus drove the Scots far to the northward, and repaired the chain of forts built by Agricola, which lay between the Carron on the frith of Forth and Dungleis on the Clyde. These were joined together by turf walls, and formed a much better defence than the wall of Adrian. However, after the death of Antoninus, Commodus having recalled Calpurnius Agricola, an able commander, who kept the Scots in awe, a more dangerous war broke out than had ever been experienced by the Romans in that quarter. The Scots having passed the wall, put all the Romans they could meet with to the sword: but they were soon repulsed by Ulpian Marcellus, a general of consummate abilities, whom Commodus sent into the island.—In a short time the tyrant also recalled this able commander. After his departure, the Roman discipline in Britain suffered a total relaxation; the soldiery grew mutinous, and great disorders ensued: but these were all happily removed by the arrival of Clodius Albinus, a person

of great skill and experience in military affairs. His presence for some time restrained the Scots within proper bounds: but a civil war breaking out between him and Severus, Albinus crossed over to the continent with the greatest part of the Roman forces in Britain; and meeting his antagonist at Lyons, a dreadful battle ensued, in which Albinus was utterly defeated, and his army cut in pieces. See *ROME*, n° 375.

The absence of the Roman forces gave encouragement to the Scots to renew their depredations, which they did with such success, that the emperor became apprehensive of losing the whole island; on which he determined to go in person and quell these troublesome enemies. The army he collected upon this occasion was far more numerous than any the Romans had ever sent into Britain; and being commanded by such an able general as Severus, it may easily be supposed that the Scots must have been very hard pressed. The particulars of this important expedition are very imperfectly related; however, we are assured that Severus lost a vast number of men, it is said not less than 50,000, in his march through Scotland. Notwithstanding, he penetrated, it is said, to the most northern extremity of the island, and obliged the enemy to yield up their arms. On his return, he built a much stronger fortification to secure the frontiers against the enemy than had ever been done before, and which in some places coincided with Adrian's wall, but extended farther at each end. But in the mean time, the Scots, provoked by the brutality of the emperor's son Caracalla, whom he had left regent in his absence, again took arms: on which Severus himself took the field, with a design, as it would seem, to extirpate the whole nation; for he gave orders to his soldiers "not to spare even the child in the mother's belly." The event of his furious declaration is unknown: but in all probability the death of the emperor, which happened soon after, put a stop to the execution of this revenge; and it is certain that his son Caracalla, who succeeded Severus, ratified the peace with the Scots.

During all these important transactions, Scotland was governed by Donald I. who is said to have been the first Christian king of this country. From him to the time of Eugene I. no remarkable occurrence offers; but under the latter, the Roman and Pictish forces were united against the Scots. The Picts were commanded by their king, named *Hargus*; and the Romans by Maximus, who murdered Valentinian III. and afterwards assumed the empire. The allies defeated Eugene in the county of Galloway; but Maximus being obliged to return southward on account of an insurrection, the Picts were in their turn defeated by the Scots. Next year, however, Maximus marched against the Scots; who being now reduced to extremity, brought into the field not only all the men capable of bearing arms, but the women also. In this engagement the Picts would have been utterly defeated, had not they been supported by the Romans; but Eugene being killed, with the greatest part of his nobility, the Scots were defeated; and so well did the conquerors improve their victory, that their antagonists were at last totally driven out of the country. Some of them took refuge in the *Æbudæ* islands, and some in Scandinavia and Ireland, from whence they made frequent descents upon Scotland. The Picts were at first mightily pleased with

10
Wars of Severus with the Scots.

11
Expulsion of the Scots by Maximus. See *ROME*, n° 336.

Scotland.

12
They re-
turn under
Fergus II.

14 See Eng-
land, n^o 27.

13
War with
the Picts.

with the victory they had gained over their antagonists; but being commanded to adopt the laws of the Romans, and to choose no king who was not sent them from Rome, they began to repent of their having contributed to the expulsion of the Scots; and in the year 421, when Autulphus king of the Goths sent over a body of exiled Scots to Britain, under Fergus, a descendant of the royal family of Scotland, the Picts immediately joined them against the common enemy. The consequence of this was, that the Britons were pushed to the last extremity; and the Romans being obliged, on account of the inundation of northern barbarians who poured in upon them, to recal their forces from Britain, the inhabitants were reduced to the most miserable situation that can be imagined. In the time of Fergus II. they were obliged to give up all the country which lies to the north of Adrian's wall; and in the reign of Grimus or Graham, the successor of Fergus, they were obliged to write that remarkable letter to Rome, intitled, "The groans of the Britons &c." This, however, not being attended with success, the Britons were obliged to call in the Saxons to their assistance. By these new allies the Scots were defeated in a great battle, and their king (Eugene) drowned in the river Humber; which put a stop for some time to these incursions.

Hitherto we have seen the Scots very formidable enemies to the southern Britons. But when the Saxons became the enemies of the Britons, the Scots joined in a strict alliance with the latter; and the famous king Arthur is said to have been assisted by the Scots in all his battles with the Saxons: neither does it appear that this league was ever dissolved again, though the united efforts of the Scots and Britons were not sufficient to preserve the independency of the latter.

The next remarkable event in the history of Scotland is the war with the Picts, which took place in the ninth century. The occasion of the quarrel was, that Dongal king of Scotland pretended a right to the Pictish throne; which, however, was rejected by the Picts: upon which both parties had recourse to arms; but when every thing was ready for the campaign, Dongal was drowned in crossing the river Spey.

At this time the dominions of the Scots comprehended the western islands, together with the counties of Argyle, Knapdale, Kyle, Kintyre, Lochaber, and a part of Breadalbane; while the Picts possessed all the rest of Scotland, and part of Northumberland; so that the Picts seem to have been by much the most powerful people of the two. However, the Scots appear to have been superior in military skill; for Alpin, the successor of Dongal, having engaged the Pictish army near Forfar, after an obstinate engagement defeated them, and killed their king, though not without the loss of a great number of his own men. The Picts chose Brudus, the son of their former king, to succeed him; but soon after deposed and put him to death, on account of his stupidity and indolence. His brother Kenneth shared the same fate on account of his cowardice; till at last another Brudus, a brave and spirited prince, ascended the throne. Having raised a powerful army, he began with offering terms of peace to the Scots; which, however, Alpin rejected, and insisted upon a total surrender of his crown. Brudus on this endeavoured to procure the assistance of Edwin

king of Northumberland. Edwin accepted the money; but pretending to be engaged in other wars, he refused the assistance which he at first promised. Brudus, not dismayed by this disappointment, marched resolutely against his enemies; and the two armies came to an engagement near Dundee. The superior skill of the Scots in military affairs was about to have decided the victory in their favour, when Brudus bethought himself of the following stratagem to preserve his army from destruction. He caused all the attendants, and even the women who attended his army, to assemble and show themselves at a distance as a powerful reinforcement coming to the Picts. This struck the Scots with such a panic, that all the efforts of Alpin could not recover them; and they were accordingly defeated with great slaughter. Alpin himself was taken prisoner, and soon after beheaded by order of the conqueror. This execution happened at a place now called *Pit-alpy*, but in former times *Bas-alpin*, which in the Gaelic language signifies the *death of Alpin*. His head was afterwards stuck upon a pole, and exposed on a wall.

Alpin was succeeded by his son Kenneth II. who being a brave and enterprising prince, resolved to take a most severe revenge for his father's death. The Scots, however, were so dispirited by their late defeat, that they were exceedingly averse to any renewal of the war: while, on the other hand, the Picts were so much elated, that they made a law by which it became death for any man to propose peace with the Scots, whom they resolved to exterminate; and some of the nobility were expelled the council on account of their opposition to this law. The consequence of this was, that civil dissensions took place among them, and a bloody battle was fought between the opposite parties, before the Scots had thought of making any farther resistance.

By these distractions Brudus, who had in vain endeavoured to appease them, was so much affected, that he died of grief; and was succeeded by his brother Drusken.—The new prince also failed in his endeavours to accommodate the civil differences; so that the Scots, by gaining so much respite, at last began to recover from their consternation; and some of them having ventured into the Pictish territories, carried off Alpin's head from the capital of their dominions, supposed to have been Abernethy. In the mean time, Kenneth found means to gain over the nobility to his side by the following stratagem; which, however ridiculous, is not incredible, if we consider the barbarism and superstition of that age. Having invited them to an entertainment, the king introduced into the hall where they slept a person clothed in a robe made of the skins of fishes, which made such a luminous appearance in the dark, that he was mistaken for an angel or some supernatural messenger. To add to the terror of those who saw him, he denounced, through a speaking trumpet, the most terrible judgments, if war was not immediately declared against the Picts, the murderers of the late king. In consequence of this celestial admonition, war was immediately renewed with great vigour. The Picts were not deficient in their preparations, and had now procured some assistance from England. The first battle was fought near Stirling; where the Picts, being deserted by their English auxiliaries, were utterly defeated. Drusken escaped by the swift-

Scotland.

14 The Scot
defeated,
and their
king killed

15 Stratagem
of Kenneth
to renew
the war.

ness of his horse, and a few days after made application to Kenneth for a cessation of hostilities; but as the Scottish monarch demanded a surrender of all the Pictish dominions, the treaty was instantly broken off. Kenneth pursued his good fortune, and conquered the counties of Merns, Angus, and Fife; but as he marched against Stirling, he received intelligence that these counties had again revolted, and cut off all the garrisons which he had left, and that Drusken was at the head of a considerable army in these parts. On this Kenneth hastened to oppose him, and a negotiation again took place. The result was equally unfavourable with the rest. Kenneth insisted on an absolute surrender of the counties of Fife, Merns, and Angus; which being refused, both parties prepared for a decisive battle. The engagement was very bloody and desperate, the Picts fighting like men in despair. Drusken renewed the battle seven times; but at last was entirely defeated and killed, and the counties in dispute became the immediate property of the conqueror.

Kenneth did not fail to improve his victory, by reducing the rest of the Pictish territories; which he is said to have done with the greatest cruelty, and even to have totally exterminated the inhabitants. The capital, called *Camelon*, (supposed to have been Abernethy), held out four months; but was at last taken by surprise, and every living creature destroyed. This was followed by the reduction of the Maiden Castle, now that of Edinburgh; which was abandoned by the garrison, who fled to Northumberland.

After the reduction of these important places, the rest of the country made no great resistance, and Kenneth became master of all the kingdom of Scotland in the present extent of the word; so that he is justly to be esteemed the true founder of the Scottish monarchy. Besides this war with the Picts, Kenneth is said to have been successful against the Saxons, though of these wars we have very little account. Having reigned 16 years in peace after his subjugation of the Picts, and composed a code of laws for the good of his people, Kenneth died of a fistula, at Fort Teviot, near Duplin in Perthshire. Before his time the seat of the Scots government had been in Argyleshire; but he removed it to Scone, by transferring thither the famous black stone supposed to be the palladium of Scotland, and which was afterwards carried off by Edward I. of England, and lodged in Westminster abbey.

Kenneth was succeeded by his brother Donald, who is represented as a man of the worst character; so that the remaining Picts who had fled out of Scotland were encouraged to apply to the Saxons for assistance, promising to make Scotland tributary to the Saxon power after it should be conquered. This proposal was accepted; and the confederates invaded Scotland with a powerful army, and took the town of Berwick; however, they were soon after defeated by Donald, who took also their ships and provisions. This capture proved their ruin; for some of the ships being laden with wine, the Scots indulged themselves so much with that liquor, that they became incapable of defending themselves; the consequence of this was, that the confederates rallying their troops, attacked them in that state of intoxication. The Scots were defeated with excessive slaughter. Twenty thousand of the common soldiers lay dead on the spot; the king and his princi-

pal nobility were taken prisoners; and all the country from the Tweed to the Forth became the property of the conquerors. Still, however, the confederates found themselves unable to pursue their victory farther; and a peace was concluded, on condition that the Saxons should become masters of all the conquered country. Thus the Forth and Clyde became the southern boundaries of the Scottish dominions. It was agreed that the Forth should from that time forward be called the *Scots Sea*; and it was made capital for any Scot to set his foot on English ground. They were to erect no forts near the English confines, to pay an annual tribute of a thousand pounds, and to give up 60 of the sons of their chief nobility as hostages. A mint was erected by the Saxon prince named *Osbreth*, at Stirling; and a cross raised on the bridge at that place, with the following inscription, implying that this place was the boundary between Scotland and England:

Anglos a Scotis separat crux ista remotis:

Arma hic stant Bruti, stant Scoti sub hac cruce tuti.

After the conclusion of this treaty, so humiliating to the Scots, the Picts, finding that their interest had been entirely neglected, fled to Norway, while those who remained in England were massacred. Donald shared the common fate of unfortunate princes, being dethroned and shut up in prison, where he at last put an end to his own life in the year 858.—In justice to this unhappy monarch, however, it must be observed, that the character of Donald, and indeed the whole account of these transactions, rests on the credit of a single author, namely Boece; and that other writers represent Donald as a hero, and successful in his wars; but the obscurity in which the whole of this period of Scottish history is involved, renders it impossible to determine any thing satisfactory concerning these matters.

Donald was succeeded by his nephew Constantine, the son of Kenneth Mac Alpin, in whose reign Scotland was first invaded by the Danes, who proved such formidable enemies to the English. This invasion is said to have been occasioned by some exiled Picts who fled to Denmark, where they prevailed upon the king of that country to send his two brothers, Hungar and Hubba, to recover the Pictish dominions from Constantine. These princes landed on the coast of Fife, where they committed the most horrid barbarities, not sparing even the ecclesiastics who had taken refuge in the island of May at the mouth of the Forth. Constantine defeated one of the Danish armies commanded by Hubba, near the water of Leven; but was himself defeated and taken prisoner by Hungar, who caused him to be beheaded at a place since called the *Devil's Cave*, in the year 874.

This unfortunate action cost the Scots 10,000 men; but the Danes seem not to have purchased their victory very easily, as they were obliged immediately afterwards to abandon their conquests, and retire to their own country. However, the many Danish monuments that are still to be seen in Fife, leave no room to doubt that many bloody scenes have been acted here between the Scots and Danes besides that above-mentioned.

Constantine was succeeded by his brother Eth, surnamed the *Swift-footed*, from his agility. Concerning him we find nothing memorable; indeed the accounts are so confused and contradictory, that it is impossible

Scotland. to form any decisive opinion concerning the transactions of this reign. All agree, however, that it was but short; and that he was succeeded by Gregory the son of Dongal, contemporary with Alfred of England, and that both princes deservedly acquired the name of *Great*. The Danes at their departure had left the Picts in possession of Fife. Against them Gregory immediately marched, and quickly drove them into the north of England, where their confederates were already masters of Northumberland and York. In their way thither they threw a garrison into the town of Berwick; but this was presently reduced by Gregory, who put to the sword all the Danes, but spared the lives of the Picts. From Berwick, Gregory pursued the Danes into Northumberland, where he defeated them; and passed the winter in Berwick. He then marched against the Cumbrians, who being mostly Picts were in alliance with the Danes. Them he easily overcame, and obliged to yield up all the lands they had formerly possessed belonging to the Scots, at the same time that he agreed to protect them from the power of the Danes. In a short time, however, Constantine the king of the Cumbrians violated the convention he had made, and invaded Annandale; but was defeated and killed by Gregory near Lochmaben. After this victory Gregory entirely reduced the counties of Cumberland and Westmoreland, which, it is said, were ceded to him by Alfred the Great; and indeed the situation of Alfred's affairs at this time renders such a cession by no means improbable.

We next find Gregory engaged in a war with the Irish, to support Donach, an Irish prince, against two rebellious noblemen. The Irish were the first aggressors, and invaded Galloway; but being repulsed with great loss, Gregory went over to Ireland in person, where the two chieftains, who had been enemies to each other before, now joined their forces in order to oppose the common enemy. The first engagement proved fatal to one of their chiefs named *Brian*, who was killed with a great number of his followers. After this victory Gregory reduced Dundalk and Drogheda. On his way to Dublin he was opposed by a chieftain named *Cornel*, who shared the fate of his confederate, being also killed, and his army entirely defeated. Gregory then became guardian to the young prince whom he came to assist, appointed a regency, and obliged them to swear that they would never admit into the country either a Dane or an Englishman without his consent. Having then placed garrisons in the strongest fortresses, he returned to Scotland, where he built the city of Aberdeen; and died in the year 892, at his castle of Dundore in the Garioch.

19 Donald III. Gregory was succeeded by Donald III. the son of Constantine, who imitated the virtues of his predecessor. The Scots historians unanimously agree that Northumberland was at that time in the hands of their countrymen; while the English as unanimously affirm that it was subject to the Danes, who paid homage to Alfred. Be this as it will, however, Donald continued to live on good terms with the English monarch, and sent him a body of forces, who proved of considerable advantage to him in his wars with the Danes. The reign of Donald was but short; for having marched against some robbers (probably no other than the Danes) who had invaded and ravaged the counties of

Murray and Ross, he died at Forres soon after, having defeated and subdued them in the year 903. He was succeeded by Constantine III. the son of Eth the Swift-footed, concerning whom the most remarkable particular we find related is his entering into an alliance with the Danes against the English. The occasion of this confederacy is said to have been, that the English monarch, Edward the Elder, finding the Scots in possession of the northern counties of England, made such extravagant demands upon Constantine as obliged him to ally with the Danes in order to preserve his dominions in security. However, the league subsisted only for two years, after which the Danes found it more for their advantage to resume their ancient friendship with the English.

As soon as Constantine had concluded the treaty with the Danes, he appointed the presumptive heir to the Scottish crown, Malcolm, or, according to some, Eugene the son of the late king Donald, prince of the southern counties, on condition of his defending them against the attacks of the English. The young prince had soon an opportunity of exerting his valour; but not behaving with the requisite caution, he had the misfortune to be defeated, with the loss of almost all his army, he himself being carried wounded out of the field; and in consequence of this disaster, Constantine was obliged to do homage to Edward for the possessions he had to the southward of the Scots boundary.

In the beginning of the reign of Athelstan the son of Edward the Elder, the northern Danes were encouraged by some conspiracies formed against that monarch to throw off the yoke; and their success was such, that Athelstan thought proper to enter into a treaty with Sithric the Danish chief, and to give him his daughter in marriage. Sithric, however, did not long survive his nuptials; and his son Guthred, endeavouring to throw off the English yoke, was defeated, and obliged to fly into Scotland. This brought on a series of hostilities between the Scots and English, which in the year 938 issued in a general engagement. At this time the Scots, Irish, Cumbrians, and Danes, were confederated against the English. The Scots were commanded by their king Constantine, the Irish by Anlaf the brother of Guthred the Danish prince, the Cumbrians by their own sovereign, and the Danes by Froda. The generals of Athelstan were Edmund his brother, and Turketil his favourite. The English attacked the entrenchments of the confederates, where the chief resistance they met with was from the Scots. Constantine was in the utmost danger of being killed or taken prisoner, but was rescued by the bravery of his soldiers; however, after a most obstinate engagement, the confederates were defeated with such slaughter, that the slain are said to have been *innumerable*. The consequence of this victory was, that the Scots were deprived of all their possessions to the southward of the Forth; and Constantine, quite dispirited with his misfortune, resigned the crown to Malcolm, and retired to the monastery of the Culdees at St Andrew's, where he died five years after, in 943.

The distresses which the English sustained in their subsequent wars with the Danes gave the Scots an opportunity of retrieving their affairs; and in the year 944, we find Malcolm, the successor of Constantine, invested with the sovereignty of Northumberland, on condition

18
Exploits of
Gregory
the Great.

20
Constantine III.
enters into
alliance with the
Danes
against
England.

21
Is utterly
defeated by
the English.

dition of his holding it as fief of the crown of England, and assisting in defence of the northern border. Soon after the conclusion of this treaty Malcolm died, and was succeeded by his son Indulfus. In his reign the Danes became extremely formidable by their invasions, which they now renewed with greater fury than ever, being exasperated by the friendship subsisting between the Scots and English monarchs. Their first descent was upon East Lothian, where they were soon expelled, but crossed over to Fife. Here they were a second time defeated, and driven out; and so well had Indulfus taken care to guard the coasts, that they could not find an opportunity of landing; till having seemed to steer towards their own country, the Scots were thrown off their guard, and the Danes on a sudden made good their landing at Cullen, in Banffshire. Here Indulfus soon came up with them, attacked their camp, and drove them towards their ships, but was killed in an ambuscade, into which he fell during the pursuit. He was succeeded by Duffus, to whom historians give an excellent character; but, after a reign of five years, he was murdered, in the year 965. He was succeeded by Cullen the son of Indulfus, who had been nominated prince of Cumberland in his father's lifetime, as heir-apparent to the throne. He is represented as a very degenerate prince; and is said to have given himself up to sensuality in a manner almost incredible, being guilty of incontinence not only with women of all ranks, but even with his own sisters and daughters. The people in the mean time were fleeced, in order to support the extravagance and luxury of their prince. In consequence of this, an assembly of the states was convened at Scone for the settling of the government; but on his way thither Cullen was assassinated, near the village of Methven, by Rohard, thane or sheriff of Fife, whose daughter the king had debauched.

The provocations which Cullen had given to his nobility seem to have rendered them totally untractable and licentious; which gave an occasion to a remarkable revolution in the reign of Kenneth III. who succeeded Cullen. This prince, being a man of great resolution, began with relieving the common people from the oppressions of the nobility, which were now intolerable; and this plan he pursued with so much success, that, having nothing to fear from the great barons, he ordered them to appear before him at Lanerk; but the greatest part, conscious of their demerits, did not attend. The king so well dissembled his displeasure, that those who came were quite charmed with his affability, and the noble entertainment he gave them; in consequence of which, when an assembly was called next year, the guilty were encouraged to appear as well as the innocent. No sooner had this assembly met, however, than the place of meeting was beset with armed men. The king then informed them that none had any thing to apprehend excepting such as had been notorious offenders; and these he ordered to be immediately taken into custody, telling them, that their submitting to public justice must be the price of their liberty. They were obliged to accept the king's offer, and the criminals were accordingly punished according to their deserts.

About this time Edgar, king of England, finding himself hard pressed by the Danes, found means to unite the king of Scotland and the prince of Cumber-

land along with himself in a treaty against the Danes; which gave occasion to a report that Kenneth had become tributary to the king of England. This, however, is utterly denied by all the Scots historians; who affirm that Kenneth cultivated a good correspondence with Edgar, as well because he expected assistance in defending his coasts, as because he intended entirely to alter the mode of succession to the throne. About this time the Danes made a dreadful invasion. Their original intention seems to have been to land on some part of the English coasts; but finding them probably too well guarded, they landed at Montrose in Scotland, committing every where the most dreadful ravages. Kenneth at that time was at Stirling, and quite unprepared; however, having collected an handful of troops, he cut off many of the enemy as they were straggling up and down, but could not prevent them from besieging Perth. Nevertheless, as the king's army constantly increased, he resolved to give the enemy battle. The scene of this action was at Loncarty, near Perth. The king is said to have offered ten pounds in silver, or the value of it in land, for the head of every Dane which should be brought him; and an immunity from all taxes to the soldiers who served in his army, provided they should be victorious: but, notwithstanding the utmost efforts of the Scots, their enemies fought so desperately, that Kenneth's army must have been totally defeated, had not the fugitives been stopped by a yeoman and his two sons of the name of Hay, who were coming up to the battle, armed with such rustic weapons as their condition in life afforded. Buchanan and Boece inform us, that these countrymen were ploughing in a field hard by the scene of action, and perceiving that their countrymen fled, they loosed their oxen, and made use of the yokes as weapons, with which they first obliged their countrymen to stand, and then annoyed their enemies. The fight was now renewed with such fury on the part of the Scots, that the Danes were utterly defeated; and, after the battle, the king rewarded Hay with the barony of Errol in the Carle of Gowrie, ennobled his family, and gave them an armorial bearing alluding to the rustic weapons with which they had achieved this glorious exploit.

In the year 994, Kenneth was murdered at the instigation of a lady named *Fenella*, whose son he had caused to be put to death. The murder was perpetrated in Fenella's castle, where she had persuaded the king to pay her a visit. His attendants waited long near the place; but being at length tired out, they broke open the doors, and found their king murdered: upon which they laid the castle in ashes; but Fenella escaped by a postern. The throne was then seized by an usurper named *Constantine*; who, being killed in battle after a reign of a year and an half, was succeeded by Grime, the grandson of king Duffus; and he again was defeated and killed by Malcolm the son of Kenneth, the lawful heir of the Scottish throne. After this victory, however, Malcolm did not immediately assume the sovereignty; but asked the crown from the nobles, in consequence of a law passed in the reign of Kenneth, by which the succession to the throne of Scotland became hereditary. This they immediately granted, and Malcolm was accordingly crowned king. He joined himself in strict alliance with the king of England; and proved so successful against the Danes in England, that

Scotland. Sweyn their king resolved to direct his whole force against him by an invasion of Scotland. His first attempt, however, proved very unsuccessful; all his soldiers being cut in pieces, except some few who escaped to their ships, while the loss of the Scots amounted to no more than 30 men. But in the mean time, Duncan, prince of Cumberland, having neglected to pay his homage to the king of England, the latter invaded that country in conjunction with the Danes. Malcolm took the field against them, and defeated both; but while he was thus employed in the south, a new army of Danes landed in the north at the mouth of the river Spey. Malcolm advanced against them with an army much inferior in number; and his men, neglecting every thing but the blind impulses of fury, were almost all cut to pieces; Malcolm himself being desperately wounded.

27
The Scots
defeated by
the Danes,

By this victory the Danes were so much elated, that they sent for their wives and children, intending to settle in this country. The castle of Nairn, at that time thought almost impregnable, fell into their hands; and the towns of Elgin and Forres were abandoned both by their garrisons and inhabitants. The Scots were everywhere treated as a conquered people, and employed in the most servile offices by the haughty conquerors; who, to render the castle of Nairn, as they thought, absolutely impregnable, cut through the small isthmus which joined it to the land. All this time, however, Malcolm was raising forces in the southern counties; and having at last got an army together, he came up with the Danes at Murtloch, near Balveny, which appears at this day to have been a strong Danish fortification. Here he attacked the enemy; but having the misfortune to lose three of his general officers, he was again obliged to retreat. However, the Danish general happening to be killed in the pursuit, the Scots were encouraged to renew the fight with such vigour, that they obtained at last a complete victory; but suffered so much, that they were unable to derive from it all the advantages which might otherwise have accrued.

28
But defeat
them in a
second
battle.

On the news of this ill success, Sweyn ordered two fleets, one from England and another from Norway, to make a descent upon Scotland, under the command of Camus, one of his most renowned generals. The Danes attempted to land at the mouth of the Forth; but finding every place there well fortified, they were obliged to move farther northward, and effected their purpose at Redhead in the county of Angus. The castle of Brechin was first besieged; but meeting with a stout resistance there, they laid the town and church in ashes. From thence they advanced to the village of Panbride, and encamped at a place called *Karboddo*.

Malcolm in the mean time was at hand with his army, and encamped at a place called *Barr*, in the neighbourhood of which both parties prepared to decide the fate of Scotland; for as Moray and the northern provinces were already in the possession of the Danes, it was evident that a victory at this time must put them in possession of the whole. The engagement was desperate, and so bloody, that the rivulet which proceeds from Loch Tay is said to have had its water dyed with the blood of the slain; but at last the Danes gave way and fled. There was at that time in the army of Malcolm, a young prince of the name of *Keith* (A). He pursued Camus; and having overtaken him, engaged and killed him; but another Scots officer coming up at the same time, disputed with Keith the glory of the action. While the dispute lasted, Malcolm came up; who suffered them to decide it by single combat. In this second combat Keith proved also victorious, and killed his antagonist. The dying person confessed the justice of Keith's claim; and Malcolm dipping his finger in his blood marked the shield of Keith with three strokes, pronouncing the words *Veritas vincit*, "Truth overcomes," which has ever since been the armorial bearing and motto of the family of Keith (B).

29
The Dan
again de
Keith.

The shattered remains of the Danish forces reached their ships; but being driven back by contrary winds, and provisions becoming scarce, they put ashore 500 men on the coast of Buchan, to procure them some food: but their communication with the ships being soon cut off, they fortified themselves as well as they could, and made a desperate resistance; but at last were all put to the sword. The place where this massacre happened is still called *Crudane*; being probably an abbreviation of *Cruor Danorum*, the blood of the Danes, a name imposed on it by the ecclesiastics of those days.

Sweyn, not yet discouraged, sent his son Canute, afterwards king of England, and one of the greatest warriors of that age, into Scotland, with an army more powerful than any that had yet appeared. Canute landed in Buchan; and, as the Scots were much weakened by such a long continued war, Malcolm thought proper to act on the defensive. But the Scots, who now thought themselves invincible, demanded to be led on to a general engagement. Malcolm complied with their desire, and a battle ensued; in which though neither party had much reason to boast of victory, the Danes were so much reduced, that they willingly concluded a peace on the following terms, viz. That the Danes should immediately depart Scotland; that as long as Malcolm and Sweyn lived, neither of them should wage war with the other, or help each other's enemies; and

30
Peace
cluded.

(A) This prince is said to have commanded a colony of the Catti, a German nation who settled in the northernmost part of Scotland, and from whom the county of Caithness takes its name.

(B) Mr Gordon, in his *Itinerarium Septentrionale*, observes, that in all probability the Scots gained two victories over the Danes on the present occasion; one near the place called *Karboddo*, already mentioned; and the other at Aberlemno, four miles from Brechin. At both places there are monuments with rude sculptures, erected most probably in memory of a victory. That at *Karboddo* is called *Camus's cross*; near which, somewhat more than a century ago, a large sepulchre, supposed to be that of Camus, was discovered. It consisted of four great stones; and had in it a huge skeleton, supposed to be that of the Danish prince. The fatal stroke seemed to have been given him on the back part of the head; a considerable portion of the skull being cut away, probably by the stroke of the sword.

land, and that the field in which the battle was fought should be set apart and consecrated for the burial of the dead. These stipulations were punctually fulfilled by Malcolm, who built in the neighbourhood a chapel dedicated to Olaus, the tutelar saint of these northern nations.

After all these glorious exploits, and becoming the second legislator in the Scottish nation, Malcolm is said to have stained the latter part of his reign with avarice and oppression; in consequence of which he was murdered at the age of 80 years, after he had reigned above 30. This assassination was perpetrated when he was on his way to Glamis. His own domestics are said to have been privy to the murder, and to have fled along with the conspirators; but in passing the lake of Forfar on the ice, it gave way with them, and they were all drowned, their bodies being discovered some days after. The latter part of this account is confirmed by the sculptures upon some stones erected near the spot; one of which is still called *Malcolm's grave-stone*; and all of them exhibit some rude representations of the murder and the fate of the assassins.

Malcolm was succeeded, in the year 1034, by his grandson Duncan I. but he is said to have had another grandson, the famous Macbeth; though some are of opinion that Macbeth was not the grandson of Malcolm, but of Fenella who murdered Kenneth III. The first years of Duncan's reign were passed in tranquillity, but domestic broils soon took place on the following occasion. Banquo, thane of Lochaber, and ancestor to the royal family of Stuart, acted then in the capacity of steward to Duncan, by collecting his rents; but being very rigid in the execution of his office, he was way-laid, robbed, and almost murdered. Of this outrage Banquo complained as soon as he recovered of his wounds and could appear at court. The robbers were summoned to surrender themselves to justice; but instead of obeying, they killed the messenger. Macbeth represented this in such strong terms, that he was sent with an army to reduce the insurgents, who had already destroyed many of the king's friends. This commission he performed with such success, that the rebel chief put an end to his own life; after which Macbeth sent his head to the king, and then proceeded with the utmost severity against the insurgents, who were composed of Irishmen, Islanders, and Highlanders.

This insurrection was scarcely quelled, when the Danes landed again in Fife; and Duncan put himself at the head of an army, having the thanes Macbeth and Banquo serving under him. The Danes were commanded by Sweyn king of Norway, and eldest son of Canute. He proceeded with all the barbarity natural to his nation, putting to death men, women, and children who fell in his way. A battle was fought between the two nations near Culrois, in which the Scots were defeated; but the Danes purchased their victory so dearly, that they could not improve it; and Duncan retreated to Perth, while Macbeth was sent to raise more forces. In the mean time Sweyn laid siege to Perth, which was defended by Duncan and Banquo. The Danes were so much distressed for want of provisions, that they at last consented to treat of a peace, provided the pressing necessities of the army were relieved. The Scots historians inform us, that this treaty was set on foot in order to amuse Sweyn, and gain time for the

stratagem which Duncan was preparing. This was no other than a barbarous contrivance of infusing intoxicating herbs into the liquors that were sent along with the other provisions to the Danish camp. These soporifics had their intended effect; and while the Danes were under their influence, Macbeth and Banquo broke into their camp, where they put all to the sword, and it was with difficulty that some of Sweyn's attendants carried him on board; and we are told that his was the only ship of all the fleet that returned to Norway. It was not long, however, before a fresh body of Danes landed at Kinghorn in the county of Fife: but they were entirely defeated by Macbeth and Banquo. Such of the Danes as escaped fled to their ships; but before they departed they obtained leave to bury their dead in Inchcolm, a small island lying in the Forth, where one of their monuments is still to be seen.

Thus ended the formidable invasions of the Danes; after which Duncan applied himself to the administration of justice, and the reformation of the manners of his subjects. Macbeth, however, who had obtained great reputation by his success against the Danes, began to form ambitious designs, and to aspire to the crown itself. The fables relating to his usurpation are so well known from the tragedy composed by Shakespeare which bears the name of *Macbeth*, that we shall not take notice of them here; but only observe, that at last Duncan, not knowing he had so dangerous an enemy near his person, whose schemes required to be watched, was murdered at Inverness by Macbeth, who succeeded him in the throne.

During the greatest part of the reign of the usurper, Malcolm, the true heir to the crown of Scotland, kept close in his principality of Cumberland, without any thoughts of ascending his father's throne. Macbeth for some time governed with moderation, but at last became a tyrant. Becoming jealous of Banquo, the most powerful subject in his dominions, he invited him to an entertainment, and caused him to be treacherously murdered. His son Fleance was destined to the same fate, but escaped to Wales. After him Macduff, the thane of Fife, was the most powerful person in Scotland; for which reason, Macbeth determined to destroy him. On this Macduff fled to France; and Macbeth cruelly put to death his wife, and children who were yet infants, and sequestered his estate. Macduff vowed revenge, and encouraged Malcolm to attempt to dethrone the tyrant. Macbeth opposed them with his whole force; but being defeated in a pitched battle, he took refuge in the most inaccessible places of the Highlands, where he defended himself for two years; but in the mean time Malcolm was acknowledged king of Scotland, and crowned at Scone.

The war between Macbeth and the new king continued for two years after the coronation of the latter; but at last he was killed in a fall by Macduff. However the public tranquillity did not end with his life. His followers elected one of his kinsmen named *Lullach*, surnamed the *Idiot*, to succeed him: but he not being able to withstand Malcolm, withdrew to the north, where being pursued, he was killed at Eslay in Strath-bogie, after a reign of four months.

Malcolm being now established on the throne, began with rewarding Macduff for his great services; and conferred upon his family four extraordinary privileges.

Scotland.

1. That they should place the king in his chair of state at the coronation. 2. That they should lead the van of all the royal armies. 3. That they should have a regality within themselves: and, 4. That if any of Macduff's family should happen to kill a nobleman unpremeditatedly, he should pay 24 marks of silver, and, if a plebeian, 12. The king's next care was to reinstate in their fathers' possessions all the children who had been disinherited by the late tyrant; which he did in a convention of his nobles held at Forfar. In the time of William the conqueror, we find Malcolm engaged in a dangerous war with England, the occasion of which was as follows. On the death of Edward the Confessor, Harold seized the throne of England, to the prejudice of Edgar Atheling the true heir to the crown. However, he created him earl of Oxford, and treated him with great respect; but on the defeat and death of Harold, William discovered some jealousy of Edgar. Soon after, William having occasion to pay a visit to his dominions in Normandy, he appointed Edgar to attend him, along with some other noblemen whom he suspected to be in his interest; but on his return to England, he found the people so much disaffected to his government, that he proceeded with great severity, which obliged great numbers of his subjects to take refuge in Cumberland and the southern parts of Malcolm's dominions. Edgar had two sisters, Margaret and Christina: these, with his two chief friends, Gospatric and Martefwin, soon made him sensible how precarious his life was under such a jealous tyrant, and persuaded him to make preparations for flying into Hungary or some foreign country. Edgar accordingly set sail with his mother Agatha, his two sisters, and a great train of Anglo-Saxon noblemen; but by stress of weather was forced into the frith of Forth, where the illustrious exiles landed at the place since that time called the *Queen's Ferry*. Malcolm no sooner heard of their landing than he paid them a visit in person; and at this visit he fell in love with the princess Margaret. In consequence of this, the chief of Edgar's party repaired to the court of Scotland. William soon made a formal demand of Edgar; and on Malcolm's refusal, declared war against him.

41
Entertains
Edgar and
English
prince.

42
War be-
tween Sco-
tland and
England.

William was the most formidable enemy the Scots had ever encountered, as having not only the whole force of England, but of Normandy, at his command. However, as he had tyrannized most unmercifully over his English subjects, they were much more inclined to assist his enemies than their own prince; and he even found himself obliged to give up the county of Northumberland to Gospatric, who had followed Edgar, upon condition of his making war on the Scots. This nobleman accordingly invaded Cumberland; in return for which Malcolm ravaged Northumberland in a dreadful manner, carrying off an immense booty, and inviting at the same time the Irish and Danes to join him.

Even at this time the Danes kept up their claims upon the crown of England, so that they could not be supposed very zealous for the interest of Edgar. The Irish were also interested in advancing the cause of Harold's three sons, who had put themselves under their protection; and besides, their chief view seems to have been to obtain plunder at the expense of any party. However, as all these views tended to the pulling down of William's power, an union was formed against him;

but when they came to particular stipulations, the parties immediately disagreed. The three sons of Harold, with a body of Irish, made a descent upon Somersetshire, and defeated a body of English; but the Irish having thus obtained an opportunity of acquiring some booty, immediately retired with it, after having ravaged the country. The Danes landed at the mouth of the Humber from 40 small ships, where they were joined by Edgar and his party; and had the allies been unanimous, it is probable that William's government would have been overthrown.

By this time William had taken from Gospatric the earldom of Northumberland, and given it to Robert Cummin one of his Norman barons; but the Northumbrians having joined Gospatric, and received the Danes as their countrymen, murdered Cummin and all his followers at Durham, where they had been guilty of great cruelties. After this they laid siege to the forts built by William in Yorkshire; but not being able to reduce them, the English, Scots, and Danes, united their forces, took the city of York itself, and put to the sword three thousand Normans who were there in garrison; and this success was followed by many incursions and ravages, in which the Danes and Northumbrians acquired great booty. It soon appeared, however, that these allies had the interest of Edgar no more at heart than the Irish; and that all the dependence of this forlorn prince was upon Malcolm, and the few Englishmen who had followed his fortune: for the booty was no sooner obtained, than the Danes retired to their ships, and the Northumbrians to their habitations, as though they had been in perfect safety. But in the mean time William, having raised a considerable army, advanced northwards. He first took a severe revenge upon the Northumbrians; then he reduced the city of York, and put to death all the inhabitants; and perceiving that danger was still threatened by the Danes, he bribed them with a sum of money to depart to their own country.

Malcolm was now left alone to encounter this formidable adversary; who, finding himself unable to oppose so great a force, withdrew to his own dominions, where he remained for some time upon the defensive, but not without making great preparations for invading England once more. His second invasion took place in the year 1071, while William was employed in quelling an insurrection in Wales. He is said at this time to have behaved with the greatest cruelty. He invaded England by Cumberland; ravaged Teesdale; and at a place called *Hundreds-keld*, he massacred some English noblemen, with all their followers. From thence he marched to Cleveland in the north-riding of Yorkshire; which he also ravaged with the utmost cruelty, sending back the booty with part of his army to Scotland: after which, he pillaged the bishopric of Durham, where he is said not to have spared the most sacred edifices, but to have burnt them to the ground. In the mean time Gospatric, to whom William had again ceded Northumberland, attempted to make diversion in his favour, by invading Cumberland: but being utterly defeated by Malcolm, he was obliged to shut himself up in Bamborough castle; while Malcolm returned in triumph with his army to Scotland, where he married the princess Margaret.

The next year William, having greatly augmented his

Scotland
43
England
invaded.

44
A second
invasion.

land. his army, invaded Scotland in his turn. The particulars of the war are unknown; but it certainly ended much to the disadvantage of the Scots, as Malcolm agreed to pay him homage. The English historians contend that this homage was for the whole of his dominions; but the Scots with more show of reason affirm, that it was only for those he possessed in England. On the conclusion of the peace, a cross was erected at Stanmore in Richmondshire, with the arms of both kings, to serve as a boundary between the possessions of William and the feudal dominions of Malcolm. Part of this monument, called *Re-cross*, or rather *Roy-cross*, or *The cross of the kings*, was entire in the days of Camden.

This peace between Malcolm Canmore and William produced the greatest alteration in the manners of the Scots. What contributed chiefly to this was the excellent disposition of queen Margaret; who was, for that age, a pattern of piety and politeness: and next to this was the number of foreigners who had settled in Scotland; among whom were some Frenchmen, who laid the foundation of that friendship with the Scots which lasted for ages. Malcolm himself, also, though by his ravages in England he seems naturally to have been a barbarian, was far from being averse to a reformation, and even set the example himself. During her husband's absence in England queen Margaret had chosen for her confessor one Turgot, whom she also made her assistant in her intended reformation. She began with new-modelling her own court; into which she introduced the offices, furniture, and manner of living, common among the more polite nations of Europe. She dismissed from her service all those who were noted for immorality and impiety: and charged Turgot, on pain of her displeasure, to give his real sentiments on the state of the kingdom, after the best inquiry he could make. By him she was informed, that faction reigned among the nobles, rapine among the commons, and incontinence among all degrees of men. Above all, he complained that the kingdom was destitute of a learned clergy, capable of reforming the people by their example and doctrine. All this the queen represented to her husband, and prevailed upon him to set about the work of reformation immediately; in which, however, he met with considerable opposition. The Scots, accustomed to oppress their inferiors, thought all restrictions of their power were as many steps towards their slavery. The introduction of foreign offices and titles confirmed them in this opinion; and such a dangerous insurrection happened in Moray and some of the northern counties, that Malcolm was obliged to march against the rebels in person. He found them, indeed, very formidable; but they were so much intimidated by his resolution, that they intreated the clergy who were among them to intercede with the king in their favour. Malcolm received their submission, but refused to grant an unconditional pardon. He gave all the common people indeed leave to return to their habitations, but obliged the better sort to surrender themselves to his pleasure. Many of the most guilty were put to death, or condemned to perpetual imprisonment; while others had their estates confiscated. This severity checked the rebellious spirit of the Scots, upon which Malcolm returned to his plans of reformation. Still, however, he found himself opposed even in those abuses,

which were most obvious and glaring. He durst not entirely abolish that infamous practice of the landlord claiming the first night with his tenant's bride; though, by the queen's influence, the privilege was changed into the payment of a piece of money by the bridegroom, and was afterwards known by the name of *mercheta mulierum*, or "the woman's merk." In those days the Scots were without the practice of saying grace after meals, till it was introduced by Margaret, who gave a glass of wine, or other liquor, to those who remained at the royal table and heard the thanksgiving; which expedient gave rise to the term of the *grace-drink*. Besides this, the terms of the duration of Lent and Easter were fixed; the king and queen bestowed large alms on the poor, and the latter washed the feet of six of their number; many churches, monasteries, &c. were erected, and the clerical revenues augmented. However, notwithstanding these reformatory measures, some historians have complained, that, along with the manners of the English and French, their luxuries were also introduced. Till this reign the Scots had been remarkable for their sobriety and the simplicity of their fare; which was now converted into excess and riot, and sometimes ended fatally by quarrels and bloodshed. We are told, at the same time, that even in those days, the nobility eat only two meals a-day, and were served with no more than two dishes at each meal; but that their deviation from their ancient temperance occasioned a diminution of the strength and size of the people.

In the year 1077, Malcolm again invaded England; but upon what provocation, or with what success, is not well known. But in 1088, after the death of the Conqueror, he again espoused the cause of Edgar Atheling, who had been reduced to implore his assistance a second time, when William Rufus ascended the throne of England. At the time of Edgar's arrival, Malcolm was at the head of a brave and well-disciplined army, with which he penetrated a great way into the country of the enemy; and, as it is said, returned to Scotland with an immense booty. Some historians tell us, that in this expedition Malcolm met with a defeat, which obliged him to return; and indeed this is not a little countenanced by others, who say, not indeed that he was defeated, but that it was *the will of God* he should proceed no farther. But, be this as it will, William resolved to revenge the injury, and prepared great armaments both by sea and land for the invasion of Scotland. His success, however, was not answerable to the greatness of his preparations. His fleet was dashed to pieces by storms, and almost all on board of it perished. Malcolm had also laid waste the country through which his antagonist was to pass, in such an effectual manner, that William lost a great part of his troops by fatigue and famine; and, when he arrived in Scotland, found himself in a situation very little able to resist Malcolm, who was advancing against him with a powerful army. In this distress, Rufus had recourse to Robert de Mowbray earl of Northumberland, who dissuaded him from venturing a battle, but advised him by all means to open a negotiation by means of Edgar and the other English noblemen who resided with Malcolm. Edgar undertook the negotiation, on condition of his being restored to his estates in England; but met with more difficulty than he imagined. Malcolm had never yet recognized the right of William Rufus to the throne

Scotland.

England? again invaded.

48 The Ergr army in great danger.

of

Scotland. of England, and therefore refused to treat with him as a sovereign prince; but offered to enter into a negotiation with his brother Robert, surnamed *Curt-hose*, from the shortness of his legs. The two princes accordingly met; and Malcolm, having shown Robert the disposition of his army, offered to cut off his brother William, and to pay to him the homage he had been accustomed to pay to the Conqueror for his English dominions. But Robert generously answered, that he had resigned to Rufus his right of primogeniture in England; and that he had even become one of William's subjects, thereby accepting of an English estate. An interview with William then followed; in which it was agreed that the king of England should restore to Malcolm all his southern possessions, for which he should pay the same homage he had been accustomed to do to the Conqueror; that he should restore to Malcolm 12 disputed manors, and give him likewise 12 merks of gold yearly, besides restoring Edgar to all his English estates.

49
Peace con-
cluded.

This treaty was concluded in Lothian, according to the English historians; but at Leeds in Yorkshire, according to the Scots. However, the English monarch looked upon the terms to be so very dishonourable, that he resolved not to fulfil them. Soon after his departure Edgar and Robert began to press him to fulfil his engagements; but receiving only evasive answers, they passed over into Normandy. After their departure, William applied himself to the fortification of his northern boundaries, especially Carlisle, which had been destroyed by the Danes 200 years before. — As this place lay within the feudal dominions of Malcolm, he complained of William's proceeding, as a breach of the late treaty; and soon after repaired to the English court at Gloucester, that he might have a personal interview with the king of England, and obtain redress. On his arrival, William refused him admittance to his presence, without paying him homage. Malcolm offered this in the same manner as had been done by his predecessors, that is, on the confines of the two kingdoms; but this being rejected by William, Malcolm returned to Scotland in a rage, and prepared again for war.

50
Hostilities
 recommen-
ced.

51
Malcolm
killed at
the siege
of Alnwick
castle.

The first of Malcolm's military operations now proved fatal to him; but the circumstances of his death are variously related. According to the Scots historians, Malcolm having laid siege to Alnwick, and reduced the place to such straits, that a knight came out of the castle, having the keys on the point of a spear, and pretending that he designed to lay them at Malcolm's feet; but instead of this, he ran him through the eye with the spear, as soon as he came within reach. They add, that prince Edward, the king's eldest son, was mortally wounded in attempting to revenge his father's death. The English historians, on the other hand, contend, that the Scots were surprised in their camp, their army entirely defeated, and their king killed. On this occasion the Scots historians also inform us, that the family of Piercy received its name; the knight who killed the Scots king having been surnamed *Pierce-eye*, from the manner in which he gave that monarch the fatal stroke. Queen Margaret, who was at that time lying ill in the castle of Edinburgh, died four days after her husband.

After the death of Malcolm Canmore, which hap-

pened in the year 1093, the throne was usurped by his brother Donald Bane; who, notwithstanding the great virtues and glorious achievements of the late king, had been at the head of a strong party during the whole of his brother's reign. The usurper, giving way to the barbarous prejudices of himself and his countrymen, expelled out of the kingdom all the foreigners whom Malcolm had introduced, and obliged them to take refuge in England. Edgar himself had long resided at the English court, where he was in high reputation; and, by his interest there, found means to rescue his nephew young Edgar, the king of Scotland's eldest son, out of the hands of the usurper Donald Bane. The favour he showed to him, however, produced an accusation against himself, as if he designed to adopt young Edgar as his son, and set him up as a pretender to the English throne. This accusation was preferred by an Englishman whose name was *Orgar*; but, as no legal proofs of the guilt could be obtained, the custom of the times rendered a single combat between the parties unavoidable. Orgar was one of the strongest and most active men in the kingdom; but the age and infirmities of Edgar allowed him to be defended by another. For a long time none could be found who would enter the lists with this champion; but at last one Godwin of Winchester, whose family had been under obligations to Edgar or his ancestors, offered to defend his cause. Orgar was overcome and killed; and, when dying, confessed the falsehood of his accusation. The conqueror obtained all the lands of his adversary, and William lived ever afterwards on terms of the strictest friendship with Edgar.

Scotland
The throne
usurped by
Donald
Bane.

53
A single
combat.

This combat, trifling as it may seem to us, produced very considerable effects. The party of Edgar and his brother's (who had likewise taken refuge at the English court) revived in Scotland, to such a degree, that Donald was obliged to call in the Danes and Norwegians to his assistance. In order to engage them more effectually to his interest, the usurper yielded up to them the Orkney and Shetland islands; but when his new allies came to his assistance, they behaved in such a manner as to become more intolerable to the Scots than ever the English had been. This discontent was greatly increased when it was found that William designed to place on the throne of Scotland a natural son of the late Malcolm, named *Duncan*, who had served in the English armies with great reputation. Donald attempted to maintain himself on the throne by the assistance of his Norwegian allies; but, being abandoned by the Scots, he was obliged to fly to the isles, in order to raise more forces; and in the mean time Duncan was crowned at Scone with the usual solemnity.

54
Donald
yields up
the Orkney
and Shet-
land islands
to the
Danes.

The Scots were now greatly distressed by two usurpers who contended for the kingdom, each of them supported by a foreign army. One of them, however, was soon dispatched. Malpedir, thane of Mearns, surprised Duncan in the castle of Menteth, and killed him; after which he replaced Donald on the throne. The affection of the Scots, however, was by this time entirely alienated from Donald, and a manifest intention of calling in young Edgar was shown. To prevent this, Donald offered the young prince all that part of Scotland which lay to the southward of the Forth; but the terms were rejected, and the messengers who brought

lan'. Brought them were put to death as traitors. The king of England also, dreading the neighbourhood of the Norwegians, interposed in young Edgar's favour, and gave Atheling the command of an army in order to restore his nephew. Donald prepared to oppose his enemies with all the forces he could raise; but was deserted by the Scots, and obliged to flee: his enemies pursued him so closely, that he was soon taken; and being brought before Edgar, he ordered his eyes to be put out, condemning him at the same time to perpetual banishment, in which he died some time after.

The historians of these times inform us, that this revolution was owing to the interposition of St Cuthbert, who appeared to Edgar, informing him that he should prove victorious, provided he repaired next day to his church, and received his banner from the hands of the canons; which he accordingly did, and proved ever afterwards a most grateful votary to his patron. During his reign a strict friendship subsisted between the courts of England and Scotland; owing to the marriage of Henry I. of England with the Princess Matilda, sister to Edgar. This has given occasion to the English historians to assert that Edgar held the kingdom of Scotland as a feudatory of Henry; and to this purpose have forged certain writings, by which Edgar acknowledges "That he held the kingdom of Scotland by gift from his Lord William king of England; and with consent of his said lord, he gives to Almighty God, and the church of Durham, and to the glorious bishop of St Cuthbert, and to bishop William, and to the monks of Durham, and their successors, the manions of Berwick and Coldingham, with several other lands possessed by his father Malcolm: and this charter is granted in the presence of bishop William, and Turgot the prior; and confirmed by the crosses of Edgar his brother, and other noblemen." But that these writings are forged, appears from the non-existence of the original charter, and from their being related in quite a different manner by some other authors.—For the same purpose a seal has been forged of Edgar sitting on horseback, with a sword in his right-hand, and a shield on his left arm, within a border of France. But this last circumstance is a sufficient proof of the forgery; since, in the same repository in which this seal is kept, there are five charters of the same Edgar, which are undoubtedly genuine; and on the seals belonging to them he is represented sitting on two swords placed across, with a sceptre in one hand, a sword in the other, a royal diadem on his head, with this inscription round it, SCOTORUM BASILEUS, which the best English antiquaries allow to have been a title denoting independency.

After a reign of nine years, Edgar died at Dundee, in the year 1107; and was succeeded by his brother Alexander I. surnamed the *Fierce* from the impetuosity of his temper. On his accession to the throne, however, the Scots were so ignorant of his true character, on account of his appearance of piety and devotion, that the northern parts of the kingdom were soon filled with ravages and bloodshed, by reason of the wars of the chieftains with each other. Alexander immediately raised an army, and marching into Moray and Ross-shire, attacked the insurgents separately; and having subdued them all, he put great numbers of them to death. He then set himself to reduce the exorbitant power of the nobles, and to deliver the common people

from the oppression under which they groaned. A remarkable instance of this appeared on his return from the expedition just now mentioned. In passing through the Mearns, he met with a widow, who complained that her husband and son had been put to death by the young earl their superior. Alexander immediately alighted from his horse, and swore that he would not remount him till he had inquired into the justice of the complaint; and, finding it to be true, the offender was hanged on the spot. These vigorous proceedings prevented all attempts at open rebellion; but produced many conspiracies among the profligate part of his private subjects, who had been accustomed to live under a more remiss government. The most remarkable of these took place while the king was engaged in building the castle of Baledgar, so called in memory of his brother Edgar, who had laid the foundation-stone. It was situated in the Carle of Gowrie, which, we are told, had formerly belonged to Donald Bane, but afterwards came to the crown, either by donation or forfeiture. The conspirators bribed one of the king's chamberlains to introduce them at night into the royal bed-chamber: but Alexander, alarmed at the noise, drew his sword, and killed six of them; after which, by the help of a knight named *Alexander Carron*, he escaped the danger, by fleeing into Fife. The conspirators chiefly resided in the Mearns, to which Alexander once more repaired at the head of an army; but the rebels retreated northwards, and crossed the Spey. The king pursued them across that river, defeated them, and brought to justice all that fell into his hands. In this battle, Carron distinguished himself so eminently, that he obtained the name of *Skringecour* or *Skrimzeour*; which indeed is no other than the English word *skirmisher* or *fighter*.

The next remarkable transaction of Alexander's reign, as recorded by the English historians, was his journey into England, where he paid a visit to Henry I. whom he found engaged in a war with the Welsh. The occasion of it was this: Henry had planted a colony of Flemings on the borders of Wales, in order to keep that turbulent people in awe, as well as to introduce into his kingdom the manufactures for which the Flemings were famous. The Welsh, jealous of this growing colony, invaded England; where they defeated the earl of Chester and Gilbert Strongbow, the two most powerful of the English subjects. Alexander, in virtue of the fealty which he had sworn for his English possessions, readily agreed to lead an army into Wales. There he defeated one of the chieftains, and reduced him to great straits; but could not prevent him from escaping to Griffith prince of North Wales, with whom he was closely allied. Henry also marched against the enemy, but with much worse success in the field than Alexander; for he lost two-thirds of his army, with almost his whole baggage, by fatigue, famine, and the attacks of the Welsh. This loss, however, he made up in some measure by his policy; for having found means to raise a jealousy between the two Welsh chiefs, he induced them to conclude a peace, but not without restoring all his lands to the one, and paying a considerable sum of money to the other. Alexander died in 1124, after a reign of seventeen years; and was buried at Dunfermline.

This prince, dying a bachelor, was succeeded by his king David's younger brother David; who interfered in the affairs with the of English.

Scotland.

59
Narrowly
escapes
assassins.

60
His exploits
in England.

61
Wars of

Scotland. of England, and took part with the empress Maud in the civil war she carried on with Stephen. In 1136, David met his antagonist at Durham; but as neither party cared to venture an engagement, a negotiation took place, and a treaty was concluded. This, however, was observed but for a short time; for, in the following year, David again invaded England, on some frivolous pretences. He defeated Stephen at Roxburgh; and forced him to retreat precipitately, after losing one half of his army. Next year he renewed his invasion; and, though he himself was a man of great mildness and humanity, he suffered his troops to commit such outrages, as firmly united the English in opposition to him. His grand-nephew William cut in pieces the vanguard of the English army at Clithero; after which he ravaged the country with such cruelty, that the inhabitants became exasperated beyond measure against him. New associations were entered into against the Scots; and the English army receiving great reinforcements from the southward, advanced to Northallerton, where the famous standard was produced. The body of this standard was a kind of box which moved upon wheels, from which arose the mast of a ship surmounted by a silver cross, and round it were hung the banners of St Peter, St John de Beverly, and St Wilfred. Standards of this kind were common at that time on the continent of Europe; and so great confidence had the English in this standard, that they now thought themselves invincible. They had, however, a much more solid ground of confidence, as being much better armed than their antagonists. The armies met at a place called *Culton Moor*. The first line of the Scots army was composed of the inhabitants of Galloway, Carric, Kyle, Cunningham, and Renfrew. These by some historians are called *Piars*, and are said to have had a prince of their own, who was a feudatory to David. The second line consisted of the Lothian men, by which we are to understand the king's subjects in England as well as the south of Scotland, together with the English and Normans of Maud's party. The third line was formed of the clans under their different chieftains; but who were subject to no regular command, and were always impatient to return to their own country when they had acquired any booty. The English soldiers having ranged themselves round their standard, dismounted from their horses, in order to avoid the long lances which the first line of the Scots army carried. Their front-line was intermixed with archers; and a body of cavalry, ready for pursuit, hovered at some distance. The Picts, besides their lances, made use of targets; but, when the English closed with them, they were soon disordered and driven back upon the centre, where David commanded in person. His son made a gallant resistance, but was at last forced to yield: the last line seems never to have been engaged. David, seeing the victory decided against him, ordered some of his men to save themselves by throwing away their badges, which it seems Maud's party had worn, and mingling with the English; after which he himself, with his shattered forces, retreated towards Carlisle. The English historians say, that in this battle the Scots were totally defeated, with the loss of 10,000 men; but this seems not to be the case, as the English did not pursue, and the Scots were in a condition for carrying on the war next year. However, there were now no great ex-

62
Battle of
the Stan-
dard.

63
The Scots
entirely de-
feated.

plots performed on either side; and a peace was concluded, by which Henry prince of Scotland was put in possession of Huntingdon and Northumberland, and took an oath of fealty to Stephen. David continued faithful to his niece the empress as long as he lived; and died at Carlisle in the year 1153, after a glorious reign of somewhat more than 29 years.

David was succeeded by his grandson Malcolm IV. surnamed the *Maiden*, on account of his continence. He appears to have been a weak and superstitious prince, and died of a depression of spirits in the year 1165. He was succeeded by his brother William I. who immediately entered into a war with Henry II. of England, on account of the earldom of Northumberland, which had been given up by Malcolm; but Henry, finding his affairs in a very embarrassed situation, consented to yield up this county, on William's paying him homage, rather than continue the miseries of war. In 1172, he attempted to avail himself of the unnatural war which Henry's sons carried on against their father, and invaded England. He divided his army into three columns: the first of which laid siege to Carlisle; the second he himself led into Northumberland; and the king's brother, David, advanced with the third into Leicestershire. William reduced the castles of Burgh, Appleby, Warkworth, and Garby; and then joined that division of his army which was besieging Carlisle. The place was already reduced to such straits, that the governor had agreed to surrender it by a certain day, provided it was not relieved before that time: on which the king, leaving some troops to continue the siege, invested a castle with some of the forces he had under his command, at the same time sending a strong reinforcement to his brother David; by which means he himself was left with a very small army, when he received intelligence that a strong body of English under Robert de Stuteville and his son were advancing to surprise him.—William, sensible of his inability to resist them, retired to Alnwick, to which he instantly laid siege; but in the mean time acted in such a careless and unthinking manner, that his enemies actually effected their designs. Having dressed a party of their soldiers in Scots habits, they took the king himself prisoner, and carried him, with his feet tied under the belly of a horse, to Richmond Castle. He was then carried in chains before Henry to Northampton, and ordered to be transported to the castle of Falaise in Normandy, where he was shut up with other state prisoners. Soon after this an accommodation took place between Henry and his sons, and the prisoners on both sides were set at liberty, William only excepted, who bore his confinement with great impatience. Of this Henry took the advantage, to make him pay homage for the whole kingdom of Scotland, and acknowledge that he held it only as a fief of the crown of England; and, as a security, he was obliged to deliver into the hands of Henry all the principal forts in Scotland, viz. the castles of Roxburgh, Berwick, Jedburgh, Edinburgh, and Stirling; William at the same time agreeing to pay the English garrisons which were put into these castles. David, the king's brother, with 20 barons, who were present at the signing of this shameful convention, were put into the hands of Henry as hostages for William's good faith; after which the king was set at liberty, and returned to Scotland.

Scotland
William
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a war
Henry
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65
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land.

The affairs of Scotland were now in the greatest confusion. The people of Galloway, at the head of whom were two noblemen or princes called *Othred* and *Gilbert*, had taken the opportunity of asserting their independency on the crown of Scotland; and, having expelled all the Scots officers out of the country, they demolished all the forts which William had erected in their country, and put to death all the foreigners. But in the mean time a quarrel ensuing between the two chiefs, *Othred* was murdered by *Gilbert*, who immediately applied to Henry for protection.

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Henry, in order to give all possible sanction to the convention betwixt him and William, summoned him to meet him and his son at York. William obeyed the summons, and along with him appeared all the great nobility and landholders; who confirmed the convention of Falaise, swore fealty to Henry, and put themselves and their country under his protection. In the mean time, *Gilbert*, who was at the head of the rebels in Galloway, had offered to put himself and his people under the protection of the king of England, and to pay to Henry 2000 merks of silver yearly, with 500 cows and as many hogs, by way of tribute: however, Henry, that he might oblige his new feudatory William, refused to have any concern in the affair. On this, William ordered his general *Gilchrist* to march against him; which he did with such success, that *Gilbert* was entirely defeated, and Galloway again reduced under the dominion of Scotland. Very soon after this victory, *Gilchrist* fell under the king's displeasure on the following occasion. He had married *Matilda*, sister to William; and on suspicion, or proof, of her incontinence, put her to death at a village called *Maynes*, near Dundee. The king being highly displeased at such a gross affront to himself, summoned *Gilchrist* to take his trial for the murder: but as the general did not choose to make his appearance, his estates were confiscated, his castles demolished, and he himself banished. He took refuge in England; but as it had been agreed in the convention between William and Henry that the one should not harbour the traitorous subjects of the other, *Gilchrist* was forced to return to Scotland with his two sons. There they were exposed to all the miseries of indigence, and in perpetual fear of being discovered, so that they were obliged to skulk from place to place. William, on his return from an expedition against an usurper whom he had defeated, happened to observe three strangers, who, though disguised like rustics, appeared by their noble mien to be above the vulgar rank. William, who first discovered them, was confirmed in this apprehension, by seeing them strike out of the high road, and endeavour to avoid notice. He ordered them to be seized and brought before him. The oldest, who was *Gilchrist* himself, fell upon his knees before him, and gave such a detail of his misfortunes as drew tears from the eyes of all present; and the king restored him to his former honours and estates. From the family of this *Gilchrist* that of the *Ogilvies* is said to be descended.

The Scots continued to be in subjection to the English until the accession of Richard I. This monarch being a man of romantic valour, zealously undertook an expedition into the Holy Land against the Turks, according to the superstition of the times. That he

might secure the quiet of his dominions in his absence, he determined to make the king of Scotland his friend; and for this purpose, he thought nothing could be more acceptable than releasing him and his subjects from that subjection which even the English themselves considered as forced and unjust. However, he determined not to lose this opportunity of supplying himself with a sum of money, which could not but be absolutely necessary in such an expensive and dangerous undertaking. He therefore made William pay him 10,000 merks for this release: after which he entered into a convention, which is still extant; and in this he acknowledges, that "all the conventions and acts of submission from William to the crown of England had been extorted from him by unprecedented writings and duress." This transaction happened in the year 1189.

The generosity of Richard met with a grateful return from William; for when Richard was imprisoned by the emperor of Germany in his return from the Holy Land, the king of Scotland sent an army to assist his regency against his rebellious brother John, who had wickedly usurped the throne of England. For this Richard owned his obligation in the highest degree; but William afterwards made this an handle for such high demands as could not be complied with. Nevertheless, the two monarchs continued in friendship as long as Richard lived. Some differences happened with King John about the possession of Northumberland and other northern counties: but these were all finally adjusted to the mutual satisfaction of both parties; and William continued a faithful ally of the English monarch till his death, which happened in the year 1214, after a reign of 49 years.

William was succeeded by his son Alexander II. a youth of 16. He revived his claim to Northumberland and the other northern counties of England; but John, supposing that he had now thoroughly subdued the English, not only refused to consider the demands of Alexander, but made preparations for invading Scotland. John had given all the country between Scotland and the river Tees to Hugh de Baliol and another nobleman, upon condition of their defending it against the Scots. Alexander fell upon Northumberland, which he easily reduced, while John invaded Scotland. Alexander retired to Melros, in order to defend his own country; upon which John burnt the towns of Wark, Alnwick, and Morpeth, and took the strong castles of Roxburgh and Berwick. He next plundered the abbey of Coldingham, reduced Dunbar and Haddington, ravaging the country as he passed along. His next operation was directed against Edinburgh; but being opposed by Alexander at the head of an army, he precipitately marched back. Alexander did not fail to pursue; and John, to cover his retreat, burnt the towns of Berwick and Coldingham. In this retreat the king of England himself set his men an example of barbarity, by setting fire every morning to the house in which he had lodged the preceding night. In short, such desolation did John spread all around him, that Alexander found it impossible to continue his pursuit; for which reason he marched westward, and invaded England by the way of Carlisle. This place he took and fortified; after which he marched south as far as Richmond, receiving homage from all the great barons as he went

Scotland.

68

William released from his homage by Richard I.

69

Alexander II.

70

War with John king of England.

Scotland along. At Richmond he was again stopped by John's ravages, and obliged to return through Westmoreland to his own dominions.

When the English barons found it necessary to put themselves under the protection of Louis, son to the king of France, that prince, among other acts of sovereignty, summoned Alexander to do him homage; but the latter being then engaged in the siege of Carlisle, which had fallen into the hands of King John, he could not immediately attend. In a short time Alexander found himself obliged to abandon this enterprise: after which he laid siege to Barnard-castle; but being baffled here also, marched southwards through the whole kingdom of England, and met Louis at London or Dover, where the prince confirmed to him the rights to Northumberland, Cumberland, and Westmoreland. He continued a faithful ally to Louis and the barons in their wars with John; and, in 1216, brought a fresh army to their assistance, when their affairs were almost desperate. This once more turned the scale against John; but he soon after dying, the English easily became reconciled to the government of Henry III. and the party of Louis dwindled every day, till at last he was obliged to drop all thoughts of being king of England.

As long as Louis continued in England, Alexander proved faithful to his interest; but, in 1217, he was on such good terms with Henry as to demand his eldest sister, the Princess Joan, for a wife. His request was granted, and in 1221 he espoused the princess; while his eldest sister Margery was married to Hubert de Burgh justiciary of England, and his second sister to Gilbert earl Marshal, the two greatest subjects in England.

As long as the queen of Scotland lived, a perfect harmony subsisted between the Scots and English: but in 1239 Queen Joan died without children; and Alexander soon after married Mary, the daughter of Egeland de Coucy, a young and beautiful French lady, by whom he had a son named *Alexander*, in 1241. From this time a coolness took place between the two courts, and many differences arose; but no hostilities were commenced on either side during the lifetime of Alexander, who died in 1249 in the 35th year of his reign.

72
Alexander III.

Immediately after the death of his father, Alexander III. took possession of the throne. He is the first of the Scots kings of whose coronation we have any particular account. We are told, that the ceremony was performed by the bishop of St Andrew's, who girded the king with a military belt, probably as an emblem of his temporal jurisdiction. He then explained in Latin, and afterwards in Gaelic, the laws and oaths relating to the king; who agreed to and received them all with great appearance of joy, as he also did the benediction and ceremony of coronation from the same prelate. After the ceremony was performed, a Highlander, probably one of those who went under the denomination of *Sannachies*, repeated on his knees before the throne, in his own language, the genealogy of Alexander and his ancestors, up to the first king of Scotland.

73
Marries the daughter of Henry III. of England. In 1250, the king, though no more than ten years of age, was married to the daughter of Henry, who now thought it a proper opportunity to cause him do homage for the whole kingdom of Scotland. But A-

lexander, notwithstanding his youth, replied with great sense and modesty, that his business in England was matrimony; that he had come thither under Henry's protection and invitation; and that he was no way prepared to answer such a difficult question.

Henry seems to have been encouraged to make this attempt by the distracted state of the Scots affairs at that time; for, during the minority of the king, the nobility threw every thing into confusion by their dissensions with one another. The family of Cummin were now become exceedingly powerful; and Alexander II. is blamed by Buchanan for allowing them to obtain such an exorbitant degree of power, by which they were enabled almost to shake the foundation of government. Notwithstanding the king's refusal to submit to the homage required of him, they imagined that Henry's influence was now too great; and fearing bad consequences to themselves, they withdrew from York, leaving Henry in full possession of his son-in-law's person. Henry, however, to show that he deserved all the confidence which could be reposed in him, publicly declared, that he dropped all claim of superiority with regard to the crown of Scotland, and that he would ever afterwards act as the father and guardian of his son-in-law; confirming his assurances by a charter. Yet when Alexander returned to Scotland, he found they had made a strong party against his English connections. They now exclaimed, that Scotland was no better than a province of England; and having gained almost all the nobility over to this opinion, they kept the king and queen as two state-prisoners in the castle of Edinburgh. Henry had secret intelligence of these proceedings; and his queen privately sent a physician whom she could trust, to inquire into her daughter's situation. Having found means of being admitted into the young queen's presence, she gave him a most lamentable account of her situation. She said, that the place of their confinement was very unwholesome, in consequence of which their health was in imminent danger; and that they had no concern in the affairs of government. Historians do not inform us by what means they were reduced to this dismal situation; only in general, that the Cummins usurped the whole power of the state. Henry did not well know how to act. If he proceeded at once to violent measures, he was afraid of the lives of his daughter and son-in-law; and, on the other hand, by a more cautious conduct, he left them exposed to the wicked attempts of those who kept them in thralldom, some of whom, he very well knew, had designs on the crown itself. By advice of the Scots royalists, among whom were the earls of Dunbar, Fife, Strath-erne, Carric, and Robert de Bruce, Henry assembled his military tenants at York, from whence he himself advanced to Newcastle, where he published a manifesto, disclaiming all designs against the peace or independency of Scotland; declaring, that the forces which had been collected at York were designed to maintain both; and that all he meant was to have an interview with the king and queen upon the borders. From Newcastle he proceeded to Wark, where he privately dispatched the Earl of Gloucester, with his favourite John Mansel, and a train of trusty followers, to gain admission into the castle of Edinburgh, which was then held by John Baliol and Robert de Ros, noblemen of great influence both in England and Scotland. The Earl and Mansel gained

73
Is contin-
with his
queen
his rebe-
ous sub-

74
They
at liber-
by Hen-

land. gained admittance into the castle in disguise, on pretence of their being tenants to Baliol and Rofs; and their followers obtained access on the same account, without any suspicion, till they were sufficiently numerous to have mastered the garrison, had they met with any resistance. The queen immediately informed them of the thralldom and tyranny in which she had been kept; and among other things declared, that she was still a virgin, as her jailors obliged her to keep separate from her husband. The English, being masters of the castle, ordered a bed to be prepared that very night for the king and queen; and Henry, hearing of the success of his party, sent a safe-conduct for the royal pair to meet him at Alnwick. Robert de Rofs was summoned by Henry to answer for his conduct; but throwing himself at the king's feet, he was punished only by the sequestration of his estate, as was John Baliol by a heavy fine, which the king of England reserved entirely to his own use.

Alexander and his queen were attended to Alnwick by the heads of their party; and when they arrived, it was agreed that Henry should act as his son-in-law's guardian; in consequence of which, several regulations were made in order to suppress the exorbitant power of the Cummins. That ambitious family, however, were all this time privately strengthening their party in Scotland, though they outwardly appeared satisfied with the arrangements which had been made. This rendered Alexander secure; so that, being off his guard, he was surprised when asleep in the castle of Kinross by the earl of Menteith, who carried him to Stirling. The Cummins were joined in this treason by Sir Hugh de Abernethy, Sir David Lochore, and Sir Hugh de Barclay; and, in the mean time, the whole nation was thrown into the utmost confusion. The great seal was forcibly taken from Robert Stuterville, substitute to the chancellor the bishop of Dunkeld; the estates of the royalists were plundered; and even the churches were not spared. The king at last was delivered by the death of the earl of Menteith, who is said to have been poisoned by his wife, in order to gratify her passion for a young English gentleman named *John Russell*. This charge, however, was never proved; but it is certain that the earl died at a juncture very critical for Scotland, and that his death disconcerted all the schemes of his party, which never afterwards could make head against the royalists.

Alexander being thus restored to the exercise of regal authority, acted with great wisdom and moderation. He pardoned the Cummins and their adherents, upon their submitting to his authority; after which, he applied himself to the regulation of his other affairs: but a storm was now ready to break upon him from another quarter. We have already seen, that the usurper Donald Bane, brother to Malcom Canmore, had engaged to deliver up the isles of Orkney and Shetland to the king of Norway, for assisting him in making good his pretensions to the crown of Scotland. Haquin, the king of Norway, at this time alleged, that these engagements extended to the delivering up the islands of Bute, Arran, and others in the Frith of Clyde, as belonging to the Ebudæ or Western isles; and as Alexander did not think proper to comply with these demands, the Norwegian monarch appeared with a fleet of 160 sail, having on board 20,000 troops,

who landed and took the castle of Air. Alexander immediately dispatched ambassadors to enter into a treaty with Haquin; but the latter, flushed with success, would hearken to no terms. He made himself master of the isles of Bute and Arran; after which he passed over to Cunningham. Alexander, prepared to oppose him, divided his army into three bodies. The first was commanded by Alexander high steward of Scotland (the great grandfather of Robert II.), and consisted of the Argyle, Athol, Lenox, and Galloway men. The second was composed of the inhabitants of Lothian, Fife, Merse, Berwick, and Stirling, under the command of Patrick earl of Dunbar. The king himself led the centre, which consisted of the inhabitants of Perthshire, Angus, Mearns, and the northern counties.—Haquin, who was an excellent commander, disposed his men in order of battle, and the engagement began at a place called *Largs*. Both parties fought with great resolution; but at last the Norwegians were defeated with dreadful slaughter, no fewer than 16,000 of them being killed on the spot. The remainder escaped to their ships; which were so completely wrecked the day after, that Haquin could scarce find a vessel to carry him with a few friends to Orkney, where he soon after died of grief.

In consequence of this victory, Owen or John king of the island of Man submitted to Alexander; and his example was followed by several other princes of the islands belonging to the Norwegians. Haquin's son, Magnus, a wise and learned prince, soon after arrived in Scotland with fresh reinforcements, and proposed a treaty: but Alexander, instead of listening to an accommodation, sent the earls of Buchan and Murray, with Allen the chamberlain, and a considerable body of men, to the western islands, where they put to the sword some of the inhabitants, and hanged their chiefs for having encouraged the Norwegian invasion. In the mean time, Magnus returned to Norway; where a treaty was at last concluded between him and Alexander. By this Magnus renounced all right to the contested islands; Alexander at the same time consenting to pay him 1000 merks of silver in the space of two years, and 100 yearly ever after, as an acknowledgment for these islands. To cement the friendship more firmly, a marriage was concluded between Margaret the daughter of Alexander, and Eric the son and heir of Magnus, who was also a child; and, some years after, when the parties were of proper age, the marriage was consummated.

From this time to the accession of Edward I. of England, we find nothing remarkable in the history of Scotland. That prince, however, proved a more cruel enemy to this country than it had ever experienced. Alexander was present at the coronation of Edward, who was then newly arrived from the Holy Land, where he had been on a crusade. Soon after this Alexander paid him homage for his English estates; particularly for the lands and lordship of Penrith and others, which Henry had given him along with his daughter. He proved an excellent ally to Edward in his wars against the French; and the latter passed a charter, by which he acknowledged that the services of the king of Scotland in those wars were not in consequence of his holding lands in England, but as an ally to his crown. Even at this time, however, Edward

Scotland.

76
Defeats the
Norwegians.

77
Regains the
islands of
Shetland,
Orkney,
&c.

Scotland.
78
Designs of
Edward I.
against the
liberties of
Scotland.

had formed a design on the liberties of that kingdom; for in the charter just mentioned, he inserted a salvo, acknowledging the superiority, by which he reserved his right to the homage of the kingdom of Scotland, when it should be claimed by him or his heirs. The bishop of Norwich suggested this salvo; and this was the reason why Alexander would not perform the homage in person, but left it to be performed by Robert Bruce earl of Carric; Alexander standing by, and expressly declaring, that it was only paid for the lands he held in England.—No acts of hostility, however, took place during the lifetime of Alexander, who was killed on the 19th of March 1285, in the 45th year of his age, by his horse rushing down the black rock near Kinghorn as he was hunting.

Both before and after the death of Alexander, the great subjects of Scotland seemed to have been sensible of Edward's ambitious designs. On the marriage of Margaret with Eric prince of Norway, the states of Scotland passed an act obliging themselves to receive her and her heirs as queen and sovereigns of Scotland. Edward at that time was in no condition to oppose this measure, in which the Scots were unanimous; and therefore contented himself with forming factions among the leading men of the country. Under pretence of resuming the cross, he renewed his intrigues at the court of Rome, and demanded leave from the pope to collect the tenths in Scotland; but his holiness replied, that he could make no such grant without the consent of the government of Scotland. On the death of Margaret queen of Norway, her daughter, in consequence of the act above-mentioned, was recognized by the states as queen of Scotland. As she was then but two years old, they came to a resolution of excluding from all share in the government, not only Edward I. but their queen's father; and they accordingly established a regency from among their own number, consisting of the six following noblemen; viz. Robert Wishart bishop of Glasgow, Sir James Cummin of Badenoch, senior, James lord high steward of Scotland, who were to have the superintendency of all that part of Scotland which lay to the south of the Forth; William Fraser bishop of St. Andrews, Duncan M'Duff earl of Fife, and Alexander Cummin earl of Buchan, who were to have the direction of all affairs to the north of the same river.—With these arrangements Eric was exceedingly displeased, as considering himself as the only rightful guardian of his own child. He therefore cultivated a good correspondence with Edward, from whom he had received considerable pecuniary favours; and perceiving that the states of Scotland were unanimous in excluding all foreigners from the management of their concerns, he fell in with the views of the king of England, and named commissioners to treat with those of Edward upon the Scots affairs. These negotiations terminated in a treaty of marriage between the queen of Scotland and Edward prince of Wales, young as they both were. This alarmed the states of Scotland, who resolved not to suffer their queen to be disposed of without their consent. It was therefore agreed by the commissioners on both sides, to acquaint them with the result of their conferences, and to demand that a deputation should be sent up for settling the regency of Scotland, or, in other words, for putting the sovereign power into the hands of the two kings. As the

two parties, however, were within the prohibited degrees of consanguinity, being first cousins, a dispensation was applied for to Pope Boniface, who granted it on condition that the peers of Scotland consented to the match.

Though the Scots nobility were very much against this match, they could not refuse their consent to it when proposed by the father and grand-uncle of their young queen. They therefore appointed the bishops of St Andrew's and Glasgow, with Robert Bruce lord of Annandale, and John Cummin, to attend as their deputies, but with a salvo to all the liberties and honours of the realm of Scotland; to which Edward agreed. These deputies met at Salisbury with those of England and Norway; and it was at last agreed, 1. That the young queen should be sent from Norway (free of all marriage-engagements) into England or Scotland. 2. That if the queen came to England, she should be at liberty to repair to Scotland as soon as the distractions of that kingdom should be settled: that she should, on her arrival in her own dominions, be free of all matrimonial contracts; but that the Scots should engage not to dispose of her in marriage without her father or Edward's consent. 3. The Scots deputies promised to give such security as the Norwegian commissioners should require, that the tranquillity of the nation should be settled before her arrival. 4. That the commissioners of Scotland and Norway, joined with commissioners from England, should remove such regents and officers of state in Scotland as should be suspected of disaffection, and place others in their stead. If the Scots and Norwegian commissioners should disagree on that or any other head relating to the government of Scotland, the decision was to be left to the arbitration of English commissioners.

The party of Edward was now so strong in Scotland, that no opposition was made to the late agreement, in a parliament held at Brechin to deliberate upon the settlement of the kingdom. It is uncertain whether he communicated in form to the Scottish parliament the pope's dispensation for the marriage: but most probably he did not; as, in a letter written to him by the states of Scotland, they mention this as a matter they heard by report. On the whole, however, they highly approved of the marriage, upon certain conditions to which Edward was previously to agree; but the latter, without waiting to perform any conditions, immediately sent for the young queen from Norway. This exceedingly displeased Eric, who was by no means inclined to put his daughter into the hands of a prince whose sincerity he suspected, and therefore shifted off the departure of the princess till he should hear farther from Scotland. Edward, alarmed at this, had again recourse to negotiation; and ten articles were at last drawn up, in which the Scots took all imaginable precautions for the safety and independency of their country. These articles were ratified by Edward on the 28th of August 1289; yet, even after the affair of the marriage was fully settled, he lost no time in procuring as strong a party as he could. At the head of these were the bishop of St Andrew's and John Baliol. That prelate, while he was in England, was highly caressed by Edward, from whom he had great expectations of preferment; and Baliol, having great estates in England, considered the latter as his sovereign. The bi-
shop,

79.
Treaty of
marriage
between the
young
queen of
Scotland
and the
prince of
Wales.

Shop, on his return to Scotland, acted as a spy for Edward, and carried on with him a secret correspondence, informing him of all public transactions. It appears from this correspondence, that the Scots were far from being unanimous as to the marriage. Bruce earl of Annandale suspected, for some reason or other, that the young queen was dead; and, soon after Michaelmas 1290, assembled a body of forces, and was joined by the earl of Mar and Athol. Intelligence of these commotions was carried to Edward by Baliol; and the bishop of St Andrew's advised Edward, in case the report of the queen's death should prove true, to march a body of troops towards Scotland, in order to secure such a successor as he thought proper.

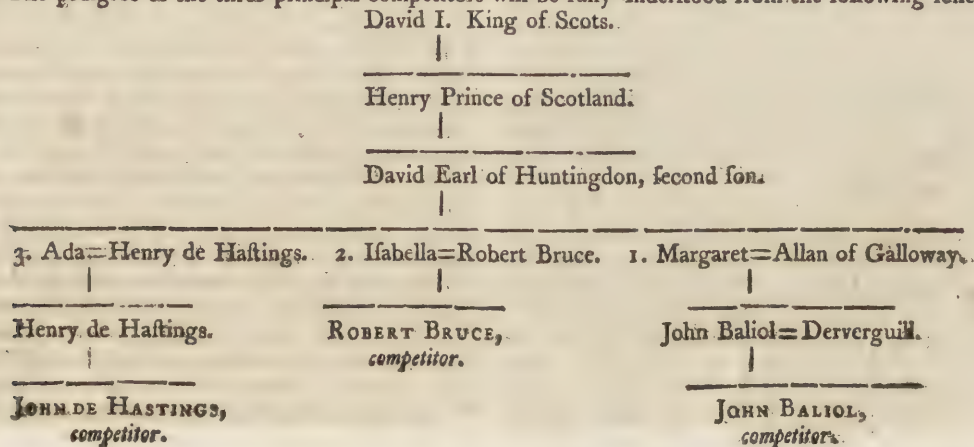
Edward, in the mean time, consented to allow ambassadors to be sent from Scotland to bring over the young queen; previous to which, he appointed the bishop of Durham to be lieutenant in Scotland for the queen and her future husband; and all the officers there, both civil and military, obliged themselves to surrender their employments and fortresses to the king and queen (that is, to Edward) immediately on their arrival in Scotland. But while the most magnificent preparations were making for the reception of the young queen, certain intelligence of her death was received; but it is not certainly known whether this event happened before the arrival of the ambassadors in Norway or after her departure from that country.

The Scots were thrown into the utmost consternation by the news of their queen's death; while, on the other hand, Edward was as well prepared as if he had known what was to happen. The state of Scotland at this time indeed was to the last degree deplorable. The act of succession established by the late king had no farther operation, being determined by the death of the queen; and since the crown was rendered hereditary, there was no precedent by which it could be settled. The Scots, in general, however, turned their eyes upon the posterity of David earl of Huntingdon, brother to the two kings Malcolm the Maiden and his successor William, both of whom died without lawful issue. The earl had three daughters. Margaret, the eldest, was married to Allan lord of Galloway; the only issue of which marriage was Derverguill wife to John Baliol, who had a son of the same name, a competitor

for the crown. The second daughter, Isabella, was married to Robert Bruce; and their son Robert was a candidate likewise. The third daughter, Ada, had been married to Henry Hastings, an English nobleman, and predecessor to the present earl of Huntingdon. John Hastings, the son of this marriage, was a third competitor; but as his claim was confessedly the worst of the three, he only put in for a third of the kingdom, on the principle that his mother was joint-heir with her two sisters (c). Several other claimants now started up. Florence earl of Holland pretended to the crown of Scotland in right of his great grandmother Ada, the eldest lawful sister of William, sometime king; as did Robert de Pynkeny, in the right also of his great-grandmother Marjory, second sister of the same king William. Patrick Gallightly was the son of Henry Gallightly, a bastard of William; William de Rofs was descended of Isabel; Patrick earl of March, of Ilda or Ada; and William de Vescei, of Marjory; who were three natural daughters of king William. Roger de Mandeville, descended from Aufrie, another natural daughter of William, also put in his claim; but the right of Nicolas de Soulis, if bastardy could give a right, was better than the former. His grandmother Marjory, the wife of Allan le Huissier, was a natural daughter of Alexander II. and consequently sister to Alexander III. John Cummin lord of Badenoch derived his claim from a more remote source, viz. Donald Bane, who usurped the crown about 200 years before this time; but he was willing to resign his pretensions in favour of John Baliol. The latter indeed had surely the best right; and, had the succession been regulated as it is in all hereditary kingdoms at this day, he would undoubtedly have carried it. Bruce and Hastings, however, pleaded that they were preferable, not only to John Baliol the grandchild of Margaret, but also to Derverguill her daughter and his mother, for the following reason. Derverguill and they were equally related to their grandfather earl David: she was indeed the daughter of his eldest daughter; but she was a woman, they were men; and, said they, the male in the same degree ought to succeed to sovereignties, in their own nature impartible, preferable to the female.

Notwithstanding this number of candidates, however,

(c) The pedigree of the three principal competitors will be fully understood from the following scheme.



Scotland.

82
Edward de-
clares him-
self sove-
reign of
Scotland.

ever, it was soon perceived, that the claims of all of them might be cut off excepting two, viz. Baliol and Bruce, of whom the former had the preference with respect to hereditary right, and the latter as to popularity. Baliol had strongly attached himself to Edward's party; which being by far the most powerful in Scotland, gave him a decided superiority over Bruce. The event was, that Edward, by his own party most probably, though, some say, by the unanimous voice of the Scot's parliament, was appointed to decide between the two competitors. It soon appeared, however, that Edward had no mind to adjudge the crown to any person but himself; for, in an assembly held at Norham on the 10th of May 1291, Brabancon the chief justice of England informed the members, "That his master was come thither in consideration of the state of the realm of Scotland, which was then without a king, to meet them, as *direct sovereign* of that kingdom, to do justice to the claimants of his crown, and to establish a solid tranquillity among his people; and that it was not his intention to retard justice, nor to usurp the right of any body, or to infringe the liberties of the kingdom of Scotland, but to render to every one his due. And to the end this might be done with the more ease, he required the assent of the states *ex abundante*, and that they should own him as *direct sovereign* of the kingdom; offering, upon that condition, to make use of their counsels to do what justice demanded." The deputies were astonished at this declaration, and replied, that they were by no means prepared to decide on Edward's claim of superiority; but that Edward ought previously to judge the cause between the two competitors, and require homage from him whom he should choose to be king. Edward treated this excuse as trifling, and gave them till next day to consider of his demand. Accordingly, on that day, the assembly was held in Norham church, where the deputies from Scotland insisted upon giving no answer to Edward's demands, which could be decided only by the whole community; representing, at the same time, that numbers of the noblemen and prelates were absent, and that they must have time to know their sense of the affair. In consequence of this, Edward gave them a delay of three weeks; which interval he employed in multiplying claimants to the crown of Scotland, and in flattering each with hopes, if he would acknowledge his superiority. But when the assembly met, according to appointment, on the 2d of June following, they found the place of meeting surrounded by a numerous army of English. Edward had employed the bishop of Durham to draw up the historical evidence of his right to the crown of Scotland; which has since been published. In this paper mention is made of the fealty and homage performed by the kings of Scotland to the Anglo-Saxon kings of England; but no sufficient evidence is brought of any such homage being actually performed. As to the homage performed by the kings of Scotland from the time of William the Conqueror to that of the dispute between Bruce and Baliol, the Scots never denied it; but they contended, and indeed with justice, that it was performed for the lands which they held from the crown of England; and they alleged, that it was as far removed from any relation to a fealty or homage performed for the crown of Scotland, as the homage

paid by the English monarchs to the crown of France Scotland. was removed from all relation to the crown of England. With regard to the homage paid by William king of Scotland to Henry II. of England, it was not denied that he performed it for the whole kingdom of Scotland: but they pleaded, that it was void of itself, because it was extorted when William was a prisoner to Henry; and they produced Richard I.'s charters, which pronounced it to have been compulsive and iniquitous.

But, however urgent these reasons of the Scots might be, Edward was by no means disposed to examine into their merits. Instead of this, he closeted the several pretenders to the crown; and having found them all ready to comply with his measures, he drew up the following charter of recognition to be signed by them all.

"To all who shall hear this present letter.

"We Florence earl of Holland, Robert de Bruce The lord of Annandale, John Baliol lord of Galloway, John Hastings lord of Abergavenny, John Cummin lord of Badenoch, Patrick de Dunbar earl of March, John Veski for his father Nicholas Soulis, and William de Ross, greeting in the Lord: dates

"Whereas we intend to pursue our right to the kingdom of Scotland; and to declare, challenge, and aver the same before him that hath most power, jurisdiction, and reason to try it; and the noble prince Edward, by the grace of God king of England, &c. having informed us, by good and sufficient reasons, that to him belongs the sovereign seigniorship of the same; We therefore promise, that we will hold firm and stable his act; and that he shall enjoy the realm to whom it shall be adjudged before him. In witness whereof, we have set our seals to this writing, made and granted at Norham, the Tuesday after the Ascension, in the year of Grace 1291."

Edward then declared, by the mouth of his chancellor, that although, in the dispute which was arisen between the several claimants, touching the succession to the kingdom of Scotland, he acted in quality of sovereign, in order to render justice to whomsoever it was due; yet he did not thereby mean to exclude himself from the hereditary right which in his own person he might have to that crown, and which right he intended to assert and improve when he should think fit: and the king himself repeated this protestation with his own mouth in French. The candidates were then severally called upon by the English chancellor, to know whether they were willing to acknowledge Edward's claim of superiority over the crown of Scotland, and to submit to his award in disposing of the same; which being answered in the affirmative, they were then admitted to prove their rights. But this was mere matter of form; for all the force of England was then assembled on the borders in order to support the claims of Edward, and nothing now remained but to furnish him with a sufficient pretence for making use of it. He observed, that the Scots were not so unanimous as they ought to be in recognising his superiority, and that the submission, which had been signed by the candidates, was not sufficient to carry it into execution; for which reason he demanded that all the forts in Scotland should be put into his possession, that he might resign them to the successful candidate. Edwa mand session the place

Though nothing could be more shameful than a tame Scotch com-

compliance with this last demand of Edward, the regency of Scotland without hesitation yielded to it also; for which they gave the following reasons. "That whereas they (the states of Scotland) had, with one assent, already granted that King Edward, as superior lord of Scotland, should give sentence as to their several rights and titles to the crown of Scotland, &c. but as the said king of England cannot put his judgement in full execution to answer effectually without the possession or seisin of the said country and its castles; we will, grant, and assent, that he, as sovereign lord thereof, to perform the things afore said, shall have seisin of all the lands and castles in Scotland, until right be done to the demandants, and to the guardians and community of the kingdom of Scotland, to restore both it and its castles, with all the royalties, dignities, franchises, customs, rights, laws, usages, and possessions, with their appurtenances, in the same state and condition they were in when he received them; saving to the king of England the homage of him that shall be king; so as they may be restored within two months after the day the rights shall be determined and affirmed; and that the profits of the nation which shall be received in the mean time shall be kept in the hands of the chamberlain of Scotland that now is, and one to be joined with him by the king of England; so as the charge of the government, castles, and officers of the realm, may be deducted. In witness whereof, &c."

For these reasons, as it is said, the regency put into the hands of Edward all the forts in the country. Gilbert de Umfreville alone, who had the command of the castles of Dundee and Forfar, refused to deliver them up, until he should be indemnified by the states, and by Edward himself, from all penalties of treason of which he might afterwards be in danger.

But though Edward had thus got into his hands the whole power of the nation, he did not think proper to determine every thing by his own authority. Instead of this, he appointed commissioners, and promised to grant letters-patent declaring that sentence should be passed in Scotland. It had been all along foreseen that the great dispute would be between Bruce and Baliol; and though the plea of Cummin was judged frivolous, yet he was a man of too much influence to be neglected, and he agreed tacitly to resign it in favour of Baliol. Edward accordingly made him the compliment of joining him with Baliol in nominating 40 commissioners: Bruce was to name 40 more; and the names of the 80 were to be given in to Edward in three days; after which the king was to add to them 24 of his own choosing. The place and time of meeting were left in their own option. They unanimously pitched upon Berwick for the place of meeting; but as they could not agree about the time, Edward appointed the 2d of August following. Soon after this, the regents resigned their commissions to Edward; but he returned them, with powers to act in his name; and he nominated the bishop of Caithness to be chancellor of Scotland; joining in the commission with him Walter de Hemondesham an Englishman, and one of his own secretaries. Still, however, he met with great difficulties. Many of his own great men, particularly the earl of Gloucester, were by no means fond of increasing the power of the English monarch by the acquisition of Scotland; and therefore threw such obstacles in his way, that he

was again obliged to have recourse to negotiation and intrigue, and at last to delay the meeting until the 2d of June in 1292: but during this interval, that he might the better reconcile the Scots to the loss of their liberty, he proposed an union of the two kingdoms; and for this he issued a writ by virtue of his superiority.

The commissioners having met on the second of June 1292, ambassadors for Norway presented themselves in the assembly, demanding that their matter should be admitted into the number of the claimants, as father and next heir to the late queen. This demand too was admitted by Edward, after the ambassadors had acknowledged his superiority over Scotland; after which he proposed that the claims of Bruce and Baliol should be previously examined, but without prejudice to those of the other competitors. This being agreed to, he ordered the commissioners to examine by what laws they ought to proceed in forming their report. The discussion of this question was attended with such difficulty, and the opinions on it were so various, that Edward once more adjourned the assembly to the 12th of October following; at which time he required the members to give their opinions on the two following points: 1. By what laws and customs they ought to proceed to judgment; and, supposing there could be no law or precedent found in the two kingdoms, in what manner? 2. Whether the kingdom of Scotland ought to be taken in the same view as all other fiefs, and to be awarded in the same manner as earldoms and baronies? The commissioners replied, that Edward ought to give justice conformable to the usage of the two kingdoms; but that if no certain laws or precedents could be found, he might, by the advice of his great men, enact a new law. In answer to the second question they said, that the succession to the kingdom might be awarded in the same manner as to other estates and great baronies. Upon this, Edward ordered Bruce and Baliol to be called before him; and both of them urged their respective pleas, and answers, to the following purpose.

Bruce pleaded, 1. That Alexander II. despairing of heirs of his own body, had declared that he held him to be the true heir, and offered to prove by the testimony of persons still alive, that he declared this with the advice and in the presence of the good men of his kingdom. Alexander III. also had declared to those with whom he was intimate, that, failing issue of his own body, Bruce was his right heir. The people of Scotland also had taken an oath for maintaining the succession of the nearest in blood to Alexander III. who ought of right to inherit, failing Margaret the Maiden of Norway and her issue.—Baliol answered, that nothing could be concluded from the acknowledgment of Alexander II. for that he left heirs of his body; but made no answer to what was said of the sentiments of Alexander III. and of the oath made by the Scottish nation to maintain the succession of the next of blood.

2. Bruce pleaded, that the right of reigning ought to be decided according to the natural law, by which kings reign; and not according to any law or usage in force between subject and subject: That by the law of nature, the nearest collateral in blood has a right to the crown; but that the constitutions which prevail among vassals, bind not the lord, much less the sovereign: That although in private inheritances, which

Scotland. are divisible, the eldest female heir has a certain prerogative, it is not so in a kingdom that is indivisible; there the nearest heir of blood is preferable whenever the succession opens.—To this Baliol replied, that the claimants were in the court of their lord paramount; and that he ought to give judgment in this case, as in the case of any other tenements, depending on his crown, that is, by the common law and usage of his kingdom, and no other. That by the laws and usages of England, the eldest female heir is preferred in the succession to all inheritances, indivisible as well as divisible.

3. It was urged by Bruce, that the manner of succession to the kingdom of Scotland in former times, made for his claim; for that the brother, as being nearest in degree, was wont to be preferred to the son of the deceased king. Thus, when Kenneth Macalpin died, his brother Donald was preferred to his son Constantine, and this was confirmed by several other authentic instances in the history of Scotland.—Baliol answered, that if the brother was preferred to the son of the king, the example proved against Bruce; for that the son, not the brother, was the nearest in degree. He admitted, that after the death of Malcolm III. his brother usurped the throne; but he contended, that the son of Malcolm complained to his liege lord the king of England, who dispossessed the usurper, and placed the son of Malcolm on the throne; that after the death of that son the brother of Malcolm III. again usurped the throne; but the king of England again dispossessed him, and raised Edgar, the second son of Malcolm, to the sovereignty.

4. Bruce pleaded, that there are examples in other countries, particularly in Spain and Savoy, where the son of the second daughter excluded the grandson of the eldest daughter. Baliol answered, that examples from foreign countries are of no importance; for that according to the laws of England and Scotland, where kings reign by succession in the direct line, and earls and barons succeed in like manner, the issue of the younger sister, although nearer in degree, excludes not the issue of the eldest sister, although more remote; but the succession continues in the direct line.

5. Bruce pleaded, that a female ought not to reign, as being incapable of governing: That at the death of Alexander III. the mother of Baliol was alive; and as she could not reign, the kingdom devolved upon him, as being the nearest male heir of the blood royal. But to this Baliol replied, that Bruce's argument was inconsistent with his claim: for that if a female ought not to reign, Isabella the mother of Bruce ought not, nor must Bruce himself claim through her. Besides, Bruce himself had sworn fealty to a female, the maiden of Norway.

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Judgment
given in fa-
vour of Ba-
liol,
The arguments being thus stated on both sides, Edward demanded an answer from the council as to the merits of the competitors. He also put the following question to them: By the laws and usages of both kingdoms, does the issue of the eldest sister, though more remote in one degree, exclude the issue of the second sister, though nearer in one degree? or ought the nearer in one degree, issuing from the second sister, to exclude the more remote in one degree issuing from the eldest sister? To this it was answered unanimously, That by the laws and usages of both kingdoms, in every heritable succession, the more remote in one de-

gree lienally descended from the eldest sister, was preferable to the nearer in degree issuing from the second sister. In consequence of this, Bruce was excluded from the succession; upon which he entered a claim for one third of the kingdom: but being baffled in this also, the kingdom of Scotland being determined an indivisible fee, Edward ordered John Baliol to have seisin of Scotland; with this caveat, however, "That this judgment should not impair his claim to the property of Scotland."

After so many disgraceful and humiliating concessions on the part of the Scots, John Baliol was crowned king at Scone on the 30th November 1292; and finished the ceremony by doing homage to the king of England. All his submissions, however, could not satisfy Edward, as long as the least shadow of independence remained to Scotland. A citizen of Berwick appealed from a sentence of the Scots judges appointed by Edward, in order to carry his cause into England. But this was opposed by Baliol, who pleaded a promise made by the English monarch, that he should "observe the laws and usages of Scotland, and not withdraw any causes from Scotland into his English courts." Edward replied, that it belonged to him to hear the complaints made against his own ministers; and concluded with asserting his right, not only to try Scots causes in England, but to summon the king of Scotland, if necessary, to appear before him in person. Baliol had not spirit to resist; and therefore signed a most disgraceful instrument, by which he declared, that all the obligations which Edward had come under were already fulfilled, and therefore that he discharged them all.

Edward now thought proper to give Baliol some marks of his favour, the most remarkable of which was giving him seisin of the Isle of Man; but it soon appeared that he intended to exercise his rights of superiority in the most provoking manner. The first instance was in the case of Malcolm earl of Fife. This nobleman had two sons, Colban his heir, and another who is constantly mentioned in history by the family-name of Macduff.—It is said, that Malcolm put Macduff in possession of the lands of Reres and Crey. Malcolm died in 1266; Colban his son, in 1270; Duncan the son of Colban, in 1288. To this last earl, his son Duncan, an infant, succeeded. During the nonage of this Duncan, grand-nephew of Macduff, William bishop of St Andrew's, guardian of the earldom, dispossessed Macduff. He complained to Edward; who having ordered his cause to be tried, restored him again to possession. Matters were in this state when Baliol held his first parliament at Scone, 10th February 1292. There Macduff was cited to answer for having taken possession of the lands of Reres and Crey, which were in possession of the king since the death of the last earl of Fife. As his defences did not satisfy the court, he was condemned to imprisonment; but an action was reserved to him against Duncan, when he should come of age, and against his heirs. In all this defence, it is surprising that Macduff should have omitted his strongest argument, viz. that the regents, by Edward's authority, had put him in possession, and that Baliol had ratified all things under Edward's authority. However, as soon as he was set at liberty, he petitioned Baliol for a rehearing; but this being refused, he appealed

land. to Edward, who ordered Baliol to appear before him in person on the 25th of March 1293; but as Baliol did not obey this order, he summoned him again to appear on the 14th of October. In the mean time the English parliament drew up certain *standing orders* in cases of appeal from the king of Scots; all of which were harsh and captious. One of these regulations provided, "that no excuse of absence should ever be received either from the appellant, or the king of Scotland respondent; but that the parties might have counsel if they demanded it."

Though Baliol had not the courage to withstand the second summons of Edward, he behaved with considerable resolution at the trial. The cause of Macduff being come on, Edward asked Baliol what he had to offer in his own defence; to which he replied, "I am king of Scotland. To the complaint of Macduff, or to ought else respecting my kingdom, I dare not make answer without the advice of my people."—Edward affected surprise at this refusal, after the submissions which Baliol had already made him; but the latter steadily replied, "In matters respecting my kingdom, I neither *dare* nor *can* answer in this place, without the advice of my people." Edward then desired him to ask a farther adjournment, that he might advise with the nation. But Baliol, perceiving that his doing so would imply an acquiescence in Edward's right of requiring his personal attendance on the English courts, made answer, "That he would neither ask a longer day, nor consent to an adjournment."—It was then resolved by the parliament of England, that the king of Scotland had offered no defence; that he had made evasive and disrespectful answers: and that he was guilty of manifest contempt of the court, and of open disobedience. To make recompense to Macduff for his imprisonment, he was ordered damages from the king of Scots, to be taxed by the court; and it was also determined that Edward should inquire, according to the usages of the country, whether Macduff recovered the tenements in question by the judgment of the king's court, and whether he was dispossessed by the king of Scots. It was also resolved, that the three principal castles of Scotland, with the towns wherein they were situated, and the royal jurisdiction thereof, should be taken into the custody of the king, and there remain until the king of Scots should make satisfaction for his contempt and disobedience. But, before this judgment was publicly intimated, Baliol addressed Edward in the following words: "My lord, I am your liege-man for the kingdom of Scotland; that, whereof you have lately treated, respects my people no less than myself: I therefore pray you to delay it until I have consulted my people, lest I be surprised through want of advice: They who are now with me, neither will nor dare advise me in absence of the rest of my kingdom. After I have advised with them, I will in your first parliament after Easter report the result, and do to you what I ought."

In consequence of this address, Edward, with consent of Macduff, stopped all proceedings till the day after the feast of Trinity 1294. But before this term Edward was obliged to suspend all proceedings against the Scots, by a war which broke out with France. In a parliament held this year by Edward, the king of Scotland appeared, and consented to yield up the whole re-

venues of his English estates for three years to assist Edward against his enemy. He was also *requested* and *ordered* by Edward to extend an embargo laid upon the English vessels all over Scotland; and this embargo to endure until the king of England's further pleasure should be known. He also requested him to send some troops for an expedition into Gascony, and required the presence and aid of several of the Scottish barons for the same purpose. The Scots, however, eluded the commands of Edward, by pretending that they could not bring any considerable force into the field; and, unable to bear his tyranny any longer, they negotiated an alliance with Philip king of France. Having assembled a parliament at Scone, they prevailed upon Baliol to dismiss all the Englishmen whom he maintained at his court. They then appointed a committee of twelve, four bishops, four earls, and four barons, by whose advice every thing was to be regulated; and, if we may credit the English historians, they watched the conduct of Baliol himself, and detained him in a kind of honourable captivity. However, they could not prevent him from delivering up the castles of Berwick, Roxburgh, and Jedburgh, to the bishop of Carlisle; in whose custody they were to remain during the war between England and France, as a pledge of his allegiance. Notwithstanding this, Baliol concluded the alliance with Philip; by which it was stipulated, that the latter should give in marriage the eldest daughter of the count of Anjou to Baliol's son; and it was also provided, that Baliol should not marry again without the consent of Philip. The king of Scotland engaged to assist Philip in his wars at his own expence, and with his whole power, especially if Edward invaded France; and Philip on his part engaged to assist Scotland, in case of an English invasion, either by making a diversion, or by sending succours.

Puffed up with the hopes of assistance from France, the Scots invaded Cumberland with a mighty army, and laid siege to Carlisle. The men abandoned the place; but the women mounted the walls, and drove the assailants from the attack. Another incursion into Northumberland proved almost as disgraceful. Their whole exploits consisted in burning a nunnery at Lameley, and a monastery at Corebridge, though dedicated to their patron St. Andrew; but having attempted to storm the castle of Harbottle, they were repulsed with loss. In the mean time Edward, with an army equal in number to that of the Scots, but much superior on account of its discipline, invaded the east coast of Scotland. Berwick had either not been delivered according to promise, or had been resumed by the Scots, and was now defended by a numerous garrison. Edward assaulted it by sea and land. The ships which began the attack were all either burnt or disabled; but Edward having led on his army in person, took the place by storm, and cruelly butchered the inhabitants, to the number of 8000, without distinction of sex or age. In this town there was a building called the *Red-hall*, which certain Flemings possessed by the tenure of defending it at all times against the king of England. Thirty of these maintained their ground for a whole day against the English army; but at night the building being set on fire, all of them perished in the flames. The same day the castle capitulated; the garrison, consisting of 2000 men, marched out with all the honours

Scotland. of war, after having sworn never to bear arms against England.

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Baliol's re-
nunciation
of his alle-
giance to
England.

In the mean time, Baliol, by the advice of his parliament, solemnly and openly renounced his allegiance to Edward, sending the following declaration.

"To the magnificent prince, Edward, by the grace of God, king of England; John, by the same grace, king of Scotland.

"Whereas you, and others of your kingdom, you not being ignorant, or having cause of ignorance, by your violent power, have notoriously and frequently done grievous and intolerable injuries, contempts, grievances, and strange damages against us, the liberties of our kingdom, and against God and justice; citing us, at your pleasure, upon every slight suggestion, out of our kingdom; unduly vexing us; seizing our castles, lands, and possessions, in your kingdom; unjustly, and for no fault of ours, taking the goods of our subjects, as well by sea as land, and carrying them into your kingdom; killing our merchants, and others of our kingdom; carrying away our subjects and imprisoning them: For the reformation of which things, we sent our messengers to you, which remain not only unredressed, but there is every day an addition of worse things to them; for now you are come with a great army upon the borders, for the disinheriting us, and the inhabitants of our kingdom; and, proceeding, have inhumanly committed slaughter, burnings, and violent invasions, as well by sea as land: We not being able to sustain the said injuries, grievances, and damages any longer, nor to remain in your fealty or homage, extorted by your violent oppression, we restore them to you, for ourself, and all the inhabitants of our kingdom, as well for the lands we hold of you in your kingdom, as for your pretended government over us."

Edward was presented with this renunciation by the hands of the intrepid Henry abbot of Aberbrethwick; and as it was favourable to his political views, he received it rather with contempt than anger. "The foolish traitor," said he to the abbot, "since he will not come to us, we will go to him." The abbot had been persuaded by his enemies, of whom he had many in Scotland, to present this letter, in hopes that Edward would have put him to death; but he had address enough to escape safe out of his hands, without receiving any other answer.

Though this scheme of renunciation had been concerted some time before, the declaration was not sent to Edward till after the taking of Berwick. The fate of Scotland, however, after it, was soon decided. The Earl of March had taken part with Edward, but the countess betrayed his castle of Dunbar into the hands of the Scots. Edward sent a chosen body of troops to recover the place. The whole force of Scotland opposed them on the heights above Dunbar; but leaving their advantageous post, and pouring down on their enemies in confusion, they were dispersed and defeated.

The castle of Dunbar surrendered at discretion; that of Roxburgh followed the same example; the castle of Edinburgh surrendered after a short siege; and Stirling was abandoned. The Scots, in the mean time, were guilty of the greatest extravagances. During the short interval between the loss of Berwick and the defeat at Dunbar, an order was made for expelling all the English ecclesiastics who held benefices in England; all the partizans of England, and all neutrals, were declared traitors, and their estates confiscated. But the great successes of Edward soon put an end to these impotent acts of fury. Baliol was obliged to implore the mercy of the conqueror. Divested of his royal ornaments, and bearing a white rod in his hand, he performed a most humiliating penance; confessing, that by evil and false counsel, and through his own simplicity, he had grievously offended his liege lord. He recapitulated his various transgressions, in concluding an alliance with France while at enmity with England; in contracting his son with the niece of the French king; in renouncing his fealty; in attacking the English territories, and in resisting Edward. He acknowledged the justice of the English invasion and conquest; and therefore he, of his own free consent, resigned Scotland, its people, and their homage, to his liege-lord Edward, 2d July 1296.

The king of England pursued his conquests, the barons everywhere crowding in to swear fealty to him, and renounce their allegiance with France. His journey ended at Elgin, from whence he returned southward; and, as an evidence of his having made an absolute conquest of Scotland, he carried off from Scone the wooden chair in which the kings were wont to be crowned. This chair had for its bottom the fatal stone regarded as the national palladium (D). Some of the charters

(D) "This stone is thus described by W. Hemingford, T. i. p. 37. "Apud monasterium de Scone positus erat lapis pergrandis in ecclesia Dei, juxta magnum altare, concavus quidem ad modum rotundæ cathedræ confectus, in quo futuri reges loco quasi coronationis ponebantur ex more. Rege itaque novo in lapide posito, missarum solemnities incepta peraguntur, et præterquam in elevatione sacri dominici corporis, semper lapidatus, mansit." And again, T. i. p. 100. "In redeundo per Scone, præcepit tolli et Londoniis cariari, lapidem illum, in quo, ut supra dictum est, Reges Scottorum solebant poni loco coronationis suæ, et hoc in signum regni conquesti et resignati." Walsingham mentions the use to which Edward put this stone: "Ad Westmonasterium transtulit illum, jubens inde fieri celebrantium cathedram sacerdotum." This account of the fatal stone is here transcribed, that it may be compared with the appearance of the stone that now bears its name at Westminster.

Fordun has preserved the ancient rhymes concerning it; L. xi. c. 25.

"Hic rex sic totam Scotiam fecit sibi notam,
Qui sine mensura tulit inde joecalia plura,
Et pariter lapidem, Scotorum quem fore sedem
Regum decrevit fatum; quod sic inolevit,
Ni fallat fatum, Scoti quocunque locatum
Invenient lapidem, regnare tenentur ibidem."

This

land. charters belonging to the abbey were carried off, and the seals torn from others: "which," says Lord Hailes, "is the only well-vouched example which I have found of any outrage on private property committed by Edward's army. It is mentioned in a charter of Robert I. and we may be assured that the outrage was not diminished in the relation."

On the 28th of August 1296, Edward held a parliament at Berwick, where he received the fealty of the clergy and laity of Scotland. It is said, that while the English monarch was employed in the conquest of Scotland, he had promised the sovereignty to Robert Bruce, lord of Annandale, in order to secure his fidelity; but being put in mind of his promise, he answered, "Have I no other business but to conquer kingdoms for you?" Bruce silently retired, and passed his days in obscurity. Among those who professed their allegiance at this parliament was Robert Bruce the younger, earl of Carrick. After this, Edward took the most effectual methods of securing his new conquest. He ordered the estates of the clergy to be restored; and having received the fealty of the widows of many of the Scottish barons, he put them in possession of their jointure-lands, and even made a decent provision for the wives of many of his prisoners. Yet, though in every thing he behaved with great moderation towards the Scots, he committed the government of certain districts, and of the chief castles in the south of Scotland, to his English subjects, of whose fidelity and vigilance he thought himself assured. In order to conciliate the affections of the clergy, he granted to the Scottish bishops, for ever, the privilege of bequeathing their effects by will, in the same manner as that privilege was enjoyed by the archbishops and bishops of England. In honour of the "glorious Confessor St Cuthbert," he gave to the monks of Durham an annual pension of 40 pounds, payable out of the revenues of Scotland, by the tenure of maintaining, before the shrine of the saint, two wax-tapers of 20 pounds weight each, and of distributing twice a-year one penny each to 3000 indigent persons. At last, having settled every thing, as he thought, in tranquillity, he departed for England, with all the pride of a conqueror.

The tranquillity established by Edward, however, was of short duration. The government of Scotland at that time required many qualities which Edward's vicegerents had not. Warenne, earl of Surry, who had been appointed governor, took up his abode in England, on pretence of recovering his health. Cressingham, the treasurer, was a voluptuous, proud, and selfish ecclesiastic; while Ormesby the justiciary was hated for his severity. Under these officers the administration of Edward became more and more feeble; bands of robbers infested the highways, and the English government was universally despised. At this critical moment arose Sir William Wallace, the hero so much celebrated in Scottish fables, and by which indeed his real exploits are so much obscured, that it is difficult to give an authentic relation of them. The most probable account is, that

he was the younger son of a gentleman (Wallace of Ellerslie) in the neighbourhood of Paisley. Having been outlawed for some offence (generally supposed to have been the killing of an Englishman), he associated with a few companions, of fortunes equally desperate with his own. Wallace himself was endowed with great strength and courage, and an active and ambitious spirit; and by his affability, eloquence, and wisdom, he maintained an authority over the rude and undisciplined multitudes who flocked to his standard. In May 1297, he began to infest the English quarters; and being successful in his predatory incursions, his party became more numerous, and he was joined by Sir William Douglas. With their united forces, these two allies attempted to surprise Ormesby the justiciary, while he held his courts at Scone; but he saved himself by a precipitate flight. After this the Scots roved over the whole country, assaulted castles, and massacred the English. Their party was joined by many persons of rank; among whom were Robert Wisheart bishop of Glasgow, the Steward of Scotland and his brother Alexander de Lindsay, Sir Richard Lundin, and Sir Andrew Moray of Bothwell. Young Bruce would have been a vast accession to the party; for he possessed all Carrick and Annandale, so that his territories reached from the frith of Clyde to Solway. But the wardens of the western marches of England suspected his fidelity, and summoned him to Carlisle. He obeyed, and made oath on the consecrated host, and on the sword of Becket, to be faithful and vigilant in the cause of Edward; and to prove his sincerity, he invaded with fire and sword the estate of Sir William Douglas, and carried off his wife and children. However, he instantly repented of what he had done: "I trust (said he), that the pope will absolve me from an extorted oath;" on which he abandoned Edward, and joined the Scottish army.

All this time Edward was in France, not in the least suspecting an insurrection among people whom he imagined he had thoroughly subdued. As soon as he received the intelligence, he ordered the earl of Surry to suppress the rebels; but he declining the command of the army himself on account of his health, resigned it to his nephew, Lord Henry Percy. A great army, some say no fewer than 40,000 men, was now assembled, with which Percy marched against the Scots. He found them encamped at Irwin, with a lake in their front, and their flanks secured by entrenchments, so that they could not be attacked without the utmost danger. The Scots, however, ruined every thing by their dissensions. Wallace was envied on account of his accomplishments, which had raised his reputation above the other officers, whose birth and circumstances were higher than his. His companions accordingly became jealous, and began to suggest, that an opposition to the English could only be productive of farther national destruction. Sir Richard Lundin, an officer of great rank, formed a party against Wallace, and went over to Edward with all his followers. He attempted to justify

This was the stone which Gathelus sent from Spain with his son when he invaded Ireland, which king Fergus won in Ireland, brought over, with him, and placed at Scone. As the most proper authority for a story of this nature, see *Ad. of Sir William Wallace*, by *Blind Hurry*, B. i. c. 4.

Scotland. his treachery, by saying, "I will remain no longer of a party that is at variance with itself;" without considering that he himself, and his party, were partly the occasion of that variance. Other leaders entered into a negotiation with the English. Bruce, the Steward and his brother Alexander de Lindey, and Sir William Douglas, acknowledged their offences, and made submissions to Edward for themselves and their adherents.

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Most of
them sub-
mit to the
English.

This scandalous treaty seems to have been negotiated by the bishop of Glasgow, and their recantation is recorded in the following words.—"Be it known to all men; Whereas we, with the commons of our country, did rise in arms against our lord Edward, and against his peace, in his territories of Scotland and Galloway, did burn, slay, and commit divers robberies; we therefore, in our own name, and in the name of all our adherents, agree to make every reparation and atonement that shall be required by our sovereign lord; reserving always what is contained in a writing which we have procured from Sir Henry Percy and Sir Robert Clifford, commanders of the English forces; at Irvine, 9th July 1297." To this instrument was subjoined, "Escrit a Sire Willaume;" the meaning of which lord Hailes supposes to be, that the barons had notified to Sir William Wallace their having made terms of accommodation for themselves and their party.

Edward accepted the submission of the Scottish barons who had been in arms, and granted liberty to those whom he had made prisoners in the course of the former year, on condition that they should serve him in his wars against France. The inconstancy of Bruce, however, was so great, that acknowledgments of submission or oaths of fealty were not thought sufficiently binding on him; for which reason the bishop of Glasgow, the Steward, and Alexander de Lindey, became sureties for his loyalty and good behaviour, until he should deliver his daughter Marjory as an hostage.

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Wallace
still holds
out.

Wallace alone refused to be concerned in these shameful submissions; and, with a few resolute followers, resolved to submit to every calamity rather than give up the liberty of his country. The barons had undertaken to procure his submission as well as their own; but finding that to be impossible, the bishop of Glasgow and Sir William Douglas voluntarily surrendered themselves prisoners to the English. Edward, however, ascribed this voluntary surrender, not to any honourable motive, but to treachery. He asserted, that Wisheart repaired to the castle of Roxburgh under pretence of yielding himself up, but with the concealed purpose of forming a conspiracy in order to betray that castle to the Scots; and in proof of this, Edward appealed to intercepted letters of Wisheart. On the other hand, Wallace, ascribing the bishop's conduct to traitorous pusillanimity, plundered his house, and carried off his family captives.

Immediately after the defection of the barons at Irvine, Wallace with his band of determined followers attacked the rear of the English army, and plundered their baggage; but was obliged to retire, with the loss of 1000 men. He then found himself deserted by almost all the men of eminence and property. His army, however, increased considerably by the accession of numbers of inferior rank, and he again began to act on the offensive. While he employed himself in besieging

the castle of Dundee, he was informed that the English army approached Stirling. Wallace, having charged the citizens of Dundee, under the pain of death, to continue the blockade of the castle, hastened with all his troops to guard the important passage of the Forth; and encamped behind a rising ground in the neighbourhood of the abbey of Cambuskemeth. Brian Fitz-Alan had been appointed governor of Scotland by Edward; but Warenne, who waited the arrival of his successor, remained with the army. Imagining that Wallace might be induced by fair means to lay down his arms, he dispatched two friars to the Scottish camp, with terms of capitulation. "Return," said Wallace, "and tell your masters, that we came not here to treat but to assert our right, and to set Scotland free: Let them advance, they will find us prepared." The English, provoked at this answer, demanded impatiently to be led on to battle. Sir Richard Lundin remonstrated against the absurdity of making a numerous army pass by a long narrow bridge in presence of the enemy. He told them, that the Scots would attack them before they could form on the plain to the north of the bridge, and thus certainly defeat them: at the same time he offered to show them a ford, which having crossed with 500 horse, and a chosen detachment of infantry, he proposed to come round upon the rear of the enemy, and by this diversion facilitate the operations of the main body. But this proposal being rejected, the English army began to pass over; which was no sooner perceived by Wallace, than he rushed down upon them, and broke them in a moment. Cressingham the treasurer was killed, and many thousands were slain on the field, or drowned in their flight. The loss of the Scots would have been inconsiderable, had it not been for that of Sir Andrew Moray, the intimate friend and companion of Wallace, who was mortally wounded in the engagement. The Scots are said to have treated the dead body of Cressingham with the utmost indignity; to have flayed him, and cut his skin into pieces, which they divided among themselves; while others tell us, they used it for making girths, and saddles.

107
Gives the
English
great de-
feat near
Stirling.

The victory at Stirling was followed by the surrender of Dundee castle, and other places of strength in Scotland; at the same time the Scots took possession of Berwick, which the English had evacuated. But as a famine now took place in Scotland by the bad seasons, and miseries of war, Wallace marched with his whole army into England, that he might in some measure relieve the necessities of his countrymen by plundering the enemy. This expedition lasted three weeks, during which time the whole tract of country from Cocker-mouth and Carlisle to the gates of Newcastle was laid waste with all the fury of revenge and rapacity; though Wallace endeavoured, as far as possible, to repress the licentiousness of his soldiers.

In 1298, Wallace assumed the title of "Governor of Scotland, in name of king John, and by consent of the Scottish nation;" but in what manner this office was obtained, is now in a great measure unknown. In a parliament which he convoked at Perth, he was confirmed in his authority; and under this title he conferred the constabulary of Dundee on Alexander, surnamed *Skrimgeour* and his heirs, on account of his faithful aid in bearing the royal standard of Scotland. This grant

and. grant is said to have been made with the consent and approbation of the Scottish nobility, 29th March 1298. From this period, however, we may date the very great jealousy which took place between Wallace and the nobles who pretended to be of his party. His elevation wounded their pride; his great services reproached their inactivity in the public cause; and thus the counsels of Scotland were perplexed with distrust and envy, when almost its very existence depended on unanimity.

In June 1298, Edward, who had all this time been in Flanders, returned to England, and summoned the Scottish barons, under pain of rebellion, to attend him in parliament; and, on their disobeying his summons, he advanced with his army towards Scotland. His main force, commanded by himself, assembled at Berwick; but a body of troops, under the earl of Pembroke, having landed in the north of Fife, were defeated with great loss by Wallace, on the 12th of June. The same month Edward invaded Scotland by the way of the eastern borders. No place resisted him except the castle of Dirlتون. After a resolute defence, it surrendered to Anthony Beck, bishop of Durham.

Meanwhile the Scots were assembling all their strength in the interior part of the country. Few barons of eminence repaired to the national standard. They whose names are recorded, were John Comyn of Badenoch, the younger; Sir John Stewart of Bonkill, brother to *The Steward*; Sir John Graham of Abercorn; and Macduff, the grand-uncle of the young earl of Fife.—Robert Bruce again acceded to the Scottish party; and with his followers guarded the important castle of Air, which kept the communication open with Galloway, Argyleshire, and the isles.

The aim of Edward was to penetrate into the west, and there to terminate the war. He appointed a fleet, with provisions, to proceed to the frith of Clyde, and await his arrival in those parts. This precaution was absolutely necessary for the subsistence of his numerous army in a country impoverished and waste.

Waiting for accounts of the arrival of his fleet, he established his head-quarters at Templeliston, between Edinburgh and Linlithgow.

A dangerous insurrection arose in his camp. He had bestowed a donative of wine among his soldiers; they became intoxicated; a national quarrel ensued.—In this tumult the Welsh slew 18 English ecclesiastics. The English horsemen rode in among the Welsh, and revenged this outrage with great slaughter. The Welsh in disgust separated themselves from the army. It was reported to Edward, that they had mutinied, and gone over to the Scots: "I care not," said Edward, dissembling the danger; "let my enemies go and join my enemies; I trust that in one day I shall chastise them all."

Edward was now placed in most critical circumstances. As the fleet with provisions had been detained by contrary winds, he could not venture to advance, neither could he subsist any longer in his present quarters. To retreat would have sullied the glory of his arms, and exposed him to the obloquy and murmurs of a discontented people. Yet he submitted to this hard necessity. Abandoning every prospect of ambition and revenge, he commanded his army to return to the eastern borders. At that moment intelligence arrived that the Scots were advanced to Falkirk.

Edward instantly marched against them. His army Scotland lay that night in the fields. While Edward slept on the ground, his war-horse struck him and broke two of his ribs. The alarm arose, that the king was wounded. They who knew not the cause, repeated the cry, "The king is wounded; there is treason in the camp; the enemy is upon us." Edward mounted on horseback, and by his presence dispelled the panic. With a fortitude of spirit superior to pain, he led on his troops. At break of day, the Scottish army was descried, forming on a stony field at the side of a small eminence in the neighbourhood of Falkirk.

110
The battle
of Falkirk.

Wallace ranged his infantry in four bodies of a circular form. The archers, commanded by Sir John Stewart, were placed in the intervals. The horse, amounting to no more than a thousand, were at some distance in the rear. On the front of the Scots lay a morass. Having drawn up his troops in this order, Wallace pleasantly said, "Now I have brought you to the ring, dance according to your skill."

Edward placed his chief confidence in the numerous and formidable body of horsemen whom he had selected for the Scottish expedition. These he ranged in three lines. The first was led by Bigot Earl Marshal, and the Earls of Hereford and Lincoln; the second by the bishop of Durham, having under him Sir Ralph Basset of Drayton; the third, intended for a reserve, was led by the king himself. No mention is made of the disposition of his infantry: it is probable that they were drawn up behind, to support the cavalry, and to annoy the Scots with their arrows and other missile weapons.

Bigot, at the head of the first line, rushed on to the charge. He was checked by the morass, which in his impetuosity he had overlooked. This obliged him to incline to the solid ground on his left, towards the right flank of the Scottish army. The bishop of Durham, who led the second line, inclined to the right, turned the morass, and advanced towards the left flank of the Scottish army. He proposed to halt till the reserve should advance. "To mass, bishop," cried Basset, and instantly charged. The shock of the English cavalry on each side was violent, and gallantly withstood by the Scottish infantry; but the Scottish cavalry, dismayed at the number and force of the English men-at-arms, immediately quitted the field. Stewart, while giving orders to his archers, was thrown from his horse and slain. His archers crowded round his body and perished with him. Often did the English strive to force the Scottish circle. "They could not penetrate into that

III
The Scots
defeated
with great
slaughter.

wood of spears," as one of their historians speaks. By repeated charges, the outermost ranks were brought to the ground. The English infantry incessantly galled the Scots with showers of stones and arrows. Macduff and Sir John Graham fell. At length the Scots were broken by the numbers and weight of the English cavalry, and the rout became universal.

The number of the Scots slain in this battle must have been very great. As is commonly the case, it is exaggerated by the historians of the victors, and reduced too low by the historians of the vanquished.

On the side of the English the loss was inconsiderable. The only persons of note who fell were Brian le Jay, master of the English Templars, and the prior of Torphichen

Scotland. which in Scotland, a knight of another order of religious soldiery (E).

The Scots in their retreat burnt the town and castle of Stirling. Edward repaired the castle, and made it a place of arms. He then marched to the west. At his approach, Bruce burnt the castle of Ayr, and retired. Edward would have pursued him into Carrick; but the want of provisions stopped his further progress. He turned into Annandale, took Bruce's castle of Lochmaben, and then departed out of Scotland by the western borders.

Here may be remarked the fatal precipitancy of the Scots. If they had studied to protract the campaign, instead of hazarding a general action at Falkirk, they would have foiled the whole power of Edward, and reduced him to the necessity of an inglorious retreat.

112
Subject condition of
John Baliol.

In 1299 Edward thought proper to release John Baliol the unfortunate king of Scotland, whom he had kept close prisoner ever since the year 1296. Before this time Baliol had used the most disgraceful methods to recover his liberty. He had solemnly declared, that "he would never have any intercourse with the Scots; that he had found them a false and treacherous people; and that he had reason to suspect them of an intention to poison him." However, notwithstanding all his protestations, Edward still detained him in captivity; but at last released him at the mediation of the pope, though after a singular form: He ordered the governor of

Dover to convey him to the French coast, and there to deliver him to the papal nuncio, "with full power to the pope to dispose of Baliol and his English estate." In consequence of which he was conveyed to Witsand, delivered to the nuncio in presence of a notary and witnesses, and a receipt taken for his person. Notwithstanding this abject state, however, the Scots continued to own him for their king, and to assert their national independency. Tho' the misfortune at Falkirk had deprived them of a very considerable extent of territory, they were still in possession of the whole country beyond the Forth, as well as the county of Galloway. By general consent William Lamberton bishop of St Andrews, Robert Bruce earl of Carrick, and John Cummin the younger, were chosen guardians of Scotland in name of Baliol. Wallace at this time was reduced to the condition of a private man; nor had he any longer the command of the Scots armies, nor any share in their councils.—The new guardians undertook to reduce the castle of Stirling, and Edward prepared to defend it. The Scots posted themselves at the Torwood, and chose their ground judiciously, so that Edward could scarce have raised the siege without dislodging them; which finding it impossible for him to do, he returned home in disgust. Next year he invaded Scotland on the west side, wasted Annandale, and reduced Galloway; but the Scots being now taught by experience to avoid a general action, chose their posts with such skill, that Edward

113
Edward
obliged
retire.

(E) "This account of the action at Falkirk, extracted from Lord Hailes's *Annals*, is drawn, his Lordship informs us, from the testimony of the English historians. "They have done justice (he observes) to the courage and steadiness of their enemies; while our historians represented their own countrymen as occupied in frivolous unmeaning contests, and, from treachery or repentment, abandoning the public cause in the day of trial.

"It would be tedious and unprofitable to recite all that has been said on this subject by our own writers from Fordun to Abercrombie. How Wallace, Stewart, and Comyn, quarrelled on the punctilio of leading the van of an army which stood on the defensive: How Stewart compared Wallace to 'an owl with borrowed feathers': How the Scottish commanders, busied in this frivolous altercation, had no leisure to form their army: How Comyn traiterously withdrew with 10,000 men: How Wallace, from repentment, followed his example: How by such disastrous incidents, the Scottish army was enfeebled, and Stewart and his party abandoned to destruction. Our histories abound in trash of this kind: There is scarcely one of our writers who has not produced an invective against Comyn, or an apology for Wallace, or a lamentation over the deserted Stewart. What dissensions may have prevailed among the Scottish commanders, it is impossible to know. It appears not to me that their dissensions had any influence on their conduct in the day of battle. The truth seems to be this: The English cavalry greatly exceeded the Scottish in numbers, were infinitely better equipped and more adroit: the Scottish cavalry were intimidated, and fled. Had they remained on the field, they might have preserved their honour; but they never could have turned the chance of that day. It was natural, however, for such of the infantry as survived the engagement, to impute their disaster to the defection of the cavalry. National pride would ascribe their flight to treachery rather than to pusillanimity. It is not improbable that Comyn commanded the cavalry: hence a report may have been spread, that Comyn betrayed his country; this report has been embellished by each successive relator. When men are seized with a panic, their commander *must* from necessity, or *will* from prudence, accompany them in their flight. Earl Warrenne fled with his army from Stirling to Berwick; yet Edward I. did not punish him as a traitor or a coward.

"The tale of Comyn's treachery, and Wallace's ill-timed repentment, may have gained credit, because it is a pretty tale, and not improbable in itself: but it amazes me that the story of the *congress* of Bruce and Wallace after the battle of Falkirk should have gained credit. I lay aside the full evidence which we now possess, 'that Bruce was not, at that time, of the English party, nor present at the battle.' For it must be admitted, that our historians knew nothing of those circumstances which demonstrate the impossibility of the *congress*. But the wonder is, that men of sound judgment should not have seen the absurdity of a long conversation between the commander of a flying army, and one of the leaders of a victorious army. When Fordun told the story, he placed a 'narrow but inaccessible glen' between the speakers. Later historians have substituted the river Carron in the place of the inaccessible glen, and they make Bruce and Wallace talk across the river like two young declaimers from the pulpits in a school of rhetoric."

ward could not penetrate farther; and the same year a truce was concluded with the Scots, to continue till Whit Sunday 1301.

This year a new competitor appeared for the crown of Scotland. Boniface VIII. in a bull directed to Edward, averred, that Scotland belonged anciently, and did still belong, to the holy see; and supported his extravagant claim by some strange authorities; such as, that Scotland had been miraculously converted by the relics of St Andrew: after which he proceeded to show the futility of Edward's pretensions, and that Scotland never had any feudal dependence on England. He required Edward to set at liberty all the Scottish ecclesiastics, particularly Wisheart bishop of Glasgow, and to remove his officers from the patrimony of the church: "But (added he) should you have any pretensions to the whole, or any part of Scotland, send your proctors to me within six months; I will hear and determine according to justice; I take the cause under my own peculiar cognizance."

This interposition of the pope had probably been procured by Scottish emissaries at the court of Rome; but, however ridiculous his pretensions might be, they afforded matter of very serious consideration to Edward. After spending a whole winter in deliberations, Edward and his parliament made separate answers to the pope. The answer of the parliament was to the following purpose: All England knows, that ever since the first establishment of this kingdom, our kings have been liege-lords of Scotland. At no time has the kingdom of Scotland belonged to the church. In temporals, the kings of England are not amenable to the see of Rome. We have with one voice resolved, that, as to temporals, the king of England is independent of Rome; that he shall not suffer his independency to be questioned; and therefore, that he shall not send commissioners to Rome. Such is, and such, we trust in God, ever will be, our opinion. We do not, we cannot, we must not, permit our king to follow measures subversive of that government which we have sworn to maintain, and which we will maintain."

The king entered into a more full refutation of the pope's arguments; and having, as he thought, answered them sufficiently, he marched again into Scotland: but, by the mediation of France, another truce was concluded, to last till St Andrew's day 1302.

After the expiration of the truce, Edward sent an army into Scotland, under the command of John de Segrave. This general divided his troops into three bodies; but, keeping them so far distant that they could not support each other, they were all engaged and defeated in one day by the Scots, near Roslin (see Roslin). This, however, was the last successful exploit of the Scots at this period. The pope deserted them; and the king of France concluded a peace with England, in which all mention of the Scots was industriously avoided; so that they were left alone to bear the whole weight of Edward's resentment, who now invaded their country in person with a mighty army. He met with no resistance in his progress, except from the castle of Brechin, which was commanded by Thomas Maul, a brave and experienced officer. He held out for 20 days against the whole power of the English army; but at last, being mortally wounded, the place capitulated.

From thence he proceeded northward, according to some historians, as far as Caithness. He then returned towards the south, and wintered in Dunfermline. In that place there was an abbey of the Benedictine order; a building so spacious, that, according to an English historian, three sovereign princes with all their retinue might have been lodged conveniently within its precincts. Here the Scottish nobles sometimes held their assemblies. The English soldiers utterly demolished this magnificent fabric.

The only fortrefs that remained in the possession of the Scots was the castle of Stirling, where Sir William Oliphant commanded. To protect this single place of refuge, Comyn assembled all his forces. He posted his army on the south bank of the river, in the neighbourhood of Stirling, there to make the last stand for the national liberty. The Scots fondly imagined, that Edward would attempt to force the passage, as the impetuous Cressingham had attempted in circumstances not dissimilar. But the prudence of Edward frustrated their expectations. Having discovered a ford at some distance, he crossed the river at the head of his whole cavalry. The Scots gave way, and dispersed themselves.

All resources but their own courage had long failed them; that last resource failed them now, and they hastened to conciliate the favour of the conqueror. Previous to this, Bruce had surrendered himself to John de St John, the English warden. Comyn and his followers now submitted to Edward. They stipulated for their lives, liberties, and estates: reserving always to Edward the power of inflicting pecuniary mulcts on them as he should see fit.

From the general conditions of this capitulation, the following persons were excepted: Wisheart bishop of Glasgow, the Steward, Sir John Soules, David de Graham, Alexander de Lindesay, Simon Fraser, Thomas Bois, and Wallace. With respect to them, it was provided, that the bishop of Glasgow, the Steward, and Soules, should remain in exile for two years; and should not pass to the north of Trent; that Graham and Lindesay should be banished from Scotland for six months; that Fraser and Bois should be banished for three years from all the dominions of Edward, and should not be permitted, during that space, to repair to the territories of France. "As for William Wallace, it is agreed, that he shall render himself up at the will and mercy of our sovereign lord the king, if it shall seem good to him." These were all the conditions that the Scottish nation stipulated for the man who had vanquished the English at Stirling, who had expelled them from Scotland, and who had once set his country free!

Amid this wreck of the national liberties, Wallace scorned submission. He lived a free man: a free man he resolved to die. Fraser, who had too oft complied with the times, now caught the same heroic sentiments. But their endeavours to rouse their countrymen were in vain. The season of resistance was past. Wallace perceived that there remained no more hope; and sought out a place of concealment, where, eluding the vengeance of Edward, he might silently lament over his fallen country.

Edward assembled at St Andrew's what is called a parliament.

Scotland.

119
The Scots
army routed.

120
Capitulation
with
Edward.

Scotland. parliament. Wallace, Fraser, and the garrison of Stirling, were summoned to appear: They appeared not, and sentence of outlawry was pronounced against them.

121
The castle of Stirling reduced, and Scotland subdued.

Edward now prepared to besiege the castle of Stirling; and, foreseeing that the reduction of this place would be attended with considerable difficulty, he stripped the abbey of St Andrew's of the lead which covered it, in order to employ the metal in bullets for his battering machines. Oliphant was solemnly summoned to surrender; but in vain. Edward drew out all his artillery, and battered the walls with stones of 200 pounds weight. The besieged, however, defended themselves with obstinacy, and killed a great number of the English: but at last they were obliged to surrender: and Edward, looking upon the conquest of Scotland as now complete, set out for York, and from thence to Lincoln.

122
Edward attempts an union between the two kingdoms in vain.

Though Edward had thus met with all the success he could desire in his expeditions against the Scots, he could not but perceive that his dominion over them must be very precarious, as long as he held them in the subjection of a conquered people. He resolved therefore once more to renew his attempts for an union of the two kingdoms. He began with taking into favour the bishop of Glasgow, Robert Bruce, and John Mowbray, who, next to Bruce and the Cummings, was amongst the greatest of the Scottish nobility. To them he recommended the settling the affairs of their country, but in such a manner as to leave it in his power to effect the proposed union with England. This scheme, however, was by no means agreeable to Bruce; who had now no other competitor for the crown but Cumming, who was in a great measure incapable of opposing his designs: neither indeed could it ever be made agreeable to the bulk of the nation; and therefore came to nothing at last. Scotland, however, was subdued. Its inhabitants had renounced every idea of asserting their liberty, and only strove to make their court to the conqueror.

123
Wallace betrayed, and executed.

Wallace alone remained an exception. Edward, who had received into favour those who had proved traitors over and over again, showed a mean revenge against the only man who discovered a steady and honourable spirit, and whose friendship seemed worth the courting. Ralph de Haliburton, a prisoner, offered his assistance for discovering Wallace; and for this purpose he was granted a temporary liberty: but what he did in this very dishonourable employment is unknown. Certain it is that Wallace was discovered, and betrayed into the hands of the English, by Sir John Menteith, as is commonly supposed; who is also said to have been the intimate friend of Wallace, though without any just foundation. Be this as it will, however, this celebrated and heroic patriot was arraigned at Westminster as a traitor to Edward, and as having burnt villages, stormed castles, and slaughtered many subjects of England. Wallace denied his ever having been a traitor, and indeed with truth; for he had always been the avowed enemy of Edward, and had not at any time owned allegiance to him. But whatever his defences might have been, they were of no avail with a judge who had resolved on his destruction. Wallace was condemned to die a traitor's death, and the sentence was executed with the utmost rigour! In his last moments he asserted that independency which a degenerate nation had renounced. His head was placed on a pinnacle at Lon-

don, and his mangled limbs were distributed over the kingdom.

After the death of Wallace, Edward thought of nothing but settling the affairs of Scotland as a conquered country; however, he took care to preserve the ancient forms as far as was consistent with the dependent state of the nation. It has been said, indeed, that Edward abrogated all the Scottish laws and customs, and endeavoured to substitute the English in their stead; but this is denied by others. Lord Hailes gives us at length the record with respect to these laws, in the following words: "And, with respect to the laws and usages of the government of Scotland, it is ordained, that the *custom of the Scots and the Brets* shall for the future be prohibited, and be no longer practised. It is also ordained, that the king's lieutenant shall forthwith assemble the good people of Scotland: and that, at such assembly, shall be read over the statutes made by David king of Scots, and also the additions and amendments which have been made by other kings; and that the lieutenant, with the assistance which he shall then have, as well of Englishmen as of Scots, shall amend such of these statutes and usages as are plainly against the laws of God and reason, as they best may in so short a space, and in so far as they can without consulting the king; and as to matters which they cannot undertake to correct of themselves, that they be put in writing, and laid before the king by the lieutenant, and any number of commissioners, with parliamentary powers, whom the Scots shall think fit to choose. That they shall meet with commissioners appointed by the king, and finally determine as to the premises."

This is the record by which it is generally supposed that the law of Scotland was abrogated. But Lord Hailes is of opinion, that *the usage of the Scots and Brets* here mentioned was something different from the common law of the land. "We know (says he), from our statute-book, that the people of Galloway had certain usages peculiar to themselves; *Stat. Alex. II. c. 2.* One was, that causes were tried among them without juries [*Quon. Attach. c. 72. 73.* placed in some ancient MSS. among LL. David I. c. 15.], and this may probably have been the usage which Edward abolished. The people of Galloway were sometimes distinguished by the name of *Scots*: thus the *wild Scot of Galloway* is an expression to be found in ancient instruments, and is proverbial even in our own days. *The usage of the Brets*, I take to be what relates to the judge called *brithibb*, or *brehon*; in Ireland, *brehan*; and consequently, that the thing here abolished was the commutation of punishments by exacting a pecuniary mulct."

An indemnity was now granted to the Scots upon certain conditions. Various fines were imposed, from one to five years rent of the estates of the delinquents. One year's rent was to be paid by the clergy, excluding the bishop of Glasgow; two by those who were more early in their submissions than Comyn; three by Comyn and his associates, and by the bishop of Glasgow; four years rent was to be paid by William de Baliol and John Wisheart; and five by Ingelram de Umfraville, because they had stood out longer. Three years rent was also paid by the vassals of Baliol, Wisheart, and Umfraville. These fines were to be paid in moieties. The person taxed was to pay half his income annually: and thus Umfraville, taxed in five years rent, was allowed

lowed ten years to discharge the fine. This was an express reservation to Edward of all the royal demesnes which Baliol might have alienated. There was also an exception for those who were already in custody, and those who had not yet submitted.

Thus, after a long and obstinate contest, was Scotland wholly reduced under the dominion of Edward. — Within four months that system was overthrown, which the incessant labour of fifteen years had established by craft, dissimulation, and violence, with a waste of treasure, and the effusion of much blood. The causes of this event are related as follows. Derverguill of Galloway had a son, John Baliol, and a daughter named Marjory. John Comyn was the son of Marjory, and, setting Baliol aside, was heir to the pretensions of Derverguill. He had for many years maintained the contest against Edward; but at last laid down his arms, and swore fealty to the conqueror; and as Baliol had repeatedly renounced all pretensions to the crown of Scotland, Comyn might now be considered as the rightful heir. His rival in power and pretensions was Bruce earl of Carrick. This young nobleman's grandfather, the competitor, had patiently acquiesced in the award of Edward. His father, yielding to the times, had served under the English banners. But young Bruce had more ambition, and a more restless spirit. In his earlier years he acted upon no regular plan. By turns the partisan of Edward and the viceroy of Baliol, he seems to have forgotten or stifled his pretensions to the crown. But his character developed itself by degrees, and in maturer age became firm and consistent. According to the traditionary report, Bruce made the following proposal to Comyn: "Support my title to the crown, and I will give you my estate; or give me your estate, and I will support yours." The conditions were properly drawn out and signed by both parties; but Comyn, either through fear or treachery, revealed the whole to Edward. On this the king showed Bruce the letters of his accuser, and questioned him very hard; but the latter found means to pacify him by mild and judicious answers. Notwithstanding this, however, Edward still suspected him, though he dissembled his sentiments, until he should get the brothers of Bruce into his power, and then destroy all the family at once. The king having drank freely one evening, informed some of his lords that he had resolved to put Bruce to death next day. The earl of Gloucester, hearing this resolution, sent a messenger to Bruce, with twelve pence and a pair of spurs, as if he had meant to restore what he had borrowed. Bruce understood the meaning of his message, and prepared for flight. The ground was covered with snow, which would have discovered his flight; but, it is said, that Bruce ordered his farrier to invert the shoes of his horses, and immediately set out for Scotland in company with his secretary and groom. In his way he observed a foot-passenger whose behaviour seemed to be suspicious, and whom he soon discovered to be the bearer of letters from Comyn to the English monarch, urging the death or immediate imprisonment of Bruce. The latter, filled with resentment, immediately beheaded the messenger, and set forward to his castle of Lochmaben, where he arrived the seventh day after his departure from London. Soon after this he repaired to Dumfries, where Comyn happened at that time to reside. Bruce requested an interview with him

in the convent of the Minorites, where he reproached him with his treachery. Comyn gave him the lie, and Bruce instantly stabbed him; after which he hastened out of the convent, and called "To horse." His attendants, Lindefay and Kirkpatrick, perceiving him pale, and in extreme agitation, inquired how it was with him? "Ill (replied Bruce); I doubt I have slain Comyn." "You doubt!" cried Kirkpatrick; on saying which, he rushed into the place where Comyn lay, and instantly dispatched him. Sir Robert Comyn, a relation, attempted to defend his kinsman, and shared his fate. Bruce had now gone so far, that it was in vain to think of retracting; and therefore set himself in opposition to Edward in good earnest. The justiciaries were then holding their court at Dumfries; who hearing what had happened, imagined their own lives to be in danger, and barricaded the doors. Bruce ordered the house to be set on fire: upon which they surrendered; and Bruce granted them leave to depart out of Scotland without molestation.

The above account of this catastrophe is taken from the Scots historians; those of England differ in many particulars. Lord Hailes supposes both to be wrong, and that the true circumstances of the quarrel are unknown. "My opinion (says he) is, that Bruce, when he met Comyn at Dumfries, had no intention of embroiling his hands in his blood, nor any immediate purpose of asserting his right to the crown of Scotland; that the slaughter of Comyn was occasioned by a hasty quarrel between two proud-spirited rivals; and that Bruce, from necessity and despair, did then assert his pretensions to the crown."

The death of Comyn affected the Scots variously, according to their different views and interests. The relations of the deceased viewed it as a cruel assassination, and joined with Edward in schemes of revenge. Some who wished well to the peace of their country, thought that it was better to submit quietly to the government of the English, than to attempt a revolution, which could not be effected without much danger and bloodshed; but, on the other hand, the friends of Bruce now saw the necessity they were under of proceeding to the coronation of the new king without loss of time. The ceremony was therefore performed at Scone on the 25th of March 1306, in presence of two earls, the bishops of St Andrew's and Glasgow, the abbot of Scone, John de Athol, and John de Menteith. It had been customary, since the days of Macbeth, for one of the family of Fife to put the crown on the king's head; and Bruce found the prepossession of the Scots in favour of this circumstance so strong, that he was obliged to seek for an expedient to satisfy them. Macduff the earl of Fife was at that time in England, where he had married a near relation of Edward. His sister was wife to the earl of Buchan, one of the heads of the family of Comyn, and consequently the determined enemy of Robert. By an uncommon effort of female patriotism, she postponed all private quarrels to the good of her country, and in her husband's absence repaired, with all his warlike accoutrements, to Bruce, to whom she delivered them up, and placed the crown upon his head. This crown is said to have been made by one Conyers an Englishman, who narrowly escaped being punished for it by Edward.

The king of England received intelligence of all these

Scotland.

130
And kills
John Comyn.

131
Opinion of
Lord Hailes
concerning
this event.

132
The Robert
ceremony was
therefore performed
at Scone on the 25th
of March 1306, in
presence of two earls,
the bishops of St
Andrew's and Glasgow,
the abbot of Scone,
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Scots in favour of
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an expedient to
satisfy them.

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Scotland.

133
He is de-
feated at
Methven

proceedings with astonishment; and without delay sent a body of troops under the command of Aymer de Valence earl of Pembroke, to suppress the rebellion. Bruce omitted nothing for his defence. He had always been considered by his countrymen as a promising accomplished young nobleman, but firmly attached to Edward's person and government; for which reason he had not been trusted by those independent patriots who joined Wallace. But their confidence was now gained by his rendering himself so obnoxious to Edward, that no possibility of a reconciliation was left; and he soon saw himself at the head of a small army. With these, who consisted of raw and unexperienced soldiers, Bruce formed a camp at Methven near Perth, which last was the head-quarters of the enemy; but knowing the disadvantage under which he laboured from the inexperience of his men, he resolved to act upon the defensive. The English general at last sent Bruce a challenge to fight him, which was accepted; but the day before the battle was to have been fought by agreement, the Scots were attacked by surprise, and totally defeated. Bruce behaved with the greatest valour, and had three horses killed under him. Being known by the slaughter which he made, John Mowbray, a man of great courage and resolution, rushed upon him, and catching hold of his horse's bridle, cried out, "I have hold of the new-made king!" but he was delivered by Christopher Seaton. Some Scottish historians have asserted, that on this occasion all the prisoners of note were put to death; but others inform us, that though Edward did send orders to that purpose, the English general pardoned all those who were willing to swear fealty to his master; however, it is certain, that after the battle of Methven, many prisoners were hanged and quartered.

134
Is distressed
after this
defeat.

This disaster almost gave the finishing stroke to the affairs of Bruce. He now found himself deserted by a great part of his army. The English had taken prisoners great numbers of women whose husbands followed Bruce; and all those were now ordered, on pain of death, to accompany their husbands. Thus was Bruce burdened with a number of useless mouths, and found it hard to subsist. The consequence was, that most of his men departed with their families, so that in a few days his army dwindled down to 500. With these he retreated to Aberdeen, where he was met by his brother Sir Neil, his wife, and a number of other ladies, all of whom offered to follow his fortune through every difficulty. But, however heroic this behaviour might be, it put Bruce to some inconvenience, as he could scarce procure subsistence; and therefore he persuaded the ladies to retire to his castle of Kildrommey, under the protection of Sir Neil Bruce and the Earl of Athol. In the mean time the desertion among Bruce's troops continued, so that now he had with him no more than 200 men; and as winter was coming on, he resolved to go into Argyleshire, where Sir Neil Campbell's estate lay, who had gone before to prepare for his reception. In his way thither he encountered incredible difficulties; and some of his followers being cut off at a place called *Dalry*, the rest were so disheartened, that they all forsook him, excepting Sir Gilbert Hay, Sir James (sometimes called Lord) Douglas, and a few domestics. Bruce, however, kept up the spirits of his little party by recounting to them the adventures of princes and patriots in circumstances similar to his own. Having

135
Reaches
Argyleshire
with great
difficulty.

crossed Lochlomond in a small crazy boat, he was discovered by his trusty friend the Earl of Lenox, who had been proscribed in England, and now lived in a kind of exile on his own estate. The meeting between these friends was very affecting, and drew tears from the eyes of all present. Lenox, who had heard nothing of Bruce's misfortunes, furnished him and his half-starved attendants with plenty of provisions: but being soon made sensible that it was impossible for them to live in a place where they were well known, and surrounded by enemies, Bruce resolved to seek out some more safe habitation. For this purpose Sir Neil Campbell had already provided shipping; but our adventurers had scarcely set sail, when they were pursued by a large squadron of the enemy's fleet. The bark which carried the earl of Lenox escaped with the utmost difficulty to Cantire, where Bruce was already landed: With and, at their meeting, both agreed that their persons should never afterwards be separated while they remained alive.

Scotland.
136
Meets w
the earl
Lenox

137
With
fire to C
tire,

In the mean time Edward having compromised some differences with his English subjects, resumed his old project of entirely subduing Scotland; and his intention now appears to have been to divide the lands of such as he suspected of disaffection among his English followers. He ordered a proclamation to be made, that all who had any title to the honour of knighthood, either by heritage or estate, should repair to Westminster to receive all military ornaments, their horses excepted, from his royal wardrobe. As the prince of Wales came under this denomination, he was the first who underwent the ceremony; which gave him a right to confer the like honour on the sons of above 300 of the chief nobility and gentry of England. The prince then repaired, at the head of this gallant train, to Edward; who received them, surrounded by his nobility, in the most solemn manner. The king then made a speech on the treachery of the Scots, whose entire destruction he vowed. He declared his resolution of once more heading his army in person; and he desired, in case of his death, that his body might be carried to Scotland, and not buried till signal vengeance was taken on the perfidious nation. Having then ordered all present to join him within fifteen days, with their attendants and military equipages, he prepared for his journey into Scotland. He entered the country soon after Bruce's defeat at Methven. The army was divided into two bodies; one commanded by the king himself, the other by the prince of Wales, and, under him, by the earls of Lancaster and Hereford, with orders to proceed northwards, and penetrate into the countries where the interest of Bruce was strongest. As he passed along, Edward caused all that fell into his hands, whom he suspected of favouring Bruce's party, to be immediately executed. The bishop of Glasgow was the only exception to this barbarity; he was taken, but had his life spared on account of his function.

138
Edward
prepara-
tions for
new inva-
sion of S
land.

In the mean time, as the prince of Wales continued his march northwards, Bruce's queen began to be alarmed for her own safety. She was advised to take sanctuary at the shrine of St Duthac in Ross-shire; but there she was made prisoner by William earl of Ross, who was of the English party. By Edward's order she was sent to London; her daughter, who was taken at the same time, being shut up in a religious house. The

139
Enters th
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140
Robert's
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land. directions for the entertainment of the queen are still preserved †. She was to be conveyed to the manor of Brustewick; to have a waiting-woman and a maid-servant, advanced in life, sedate, and of good conversation: a butler, two men-servants, and a foot-boy for her chamber, sober, not riotous, to make her bed: three greyhounds when she inclines to hunt; venison, fish, and the fairest house in the manor. In 1308, she was removed to another prison; in 1312, she was removed to Windsor castle, 20 shillings per week being allowed for her maintenance. In 1314, she was committed to Rochester castle, and was not set at liberty till the close of that year.

The only fortrefs which Bruce possessed in Scotland was the castle of Kildromme; and it was soon besieged by the earls of Lancaster and Hereford. One Osburn treacherously burnt the magazine; by which means the garrison, destitute of provisions, was obliged to surrender at discretion. The common soldiers were hanged; Sir Neil Bruce and the earl of Athol were sent prisoners to Edward, who caused them to be hanged on a gallows 50 feet high, and then beheaded and burnt. The countess of Buchan, who had crowned King Robert, was taken prisoner; as was Lady Mary Bruce, the king's sister. Some historians say, that Edward ordered these two ladies to be shut up in wooden cages, one to be hung over the walls of the castle of Roxburgh, and the other over those of Berwick, as public spectacles: but Lord Hailes only tells us, that the countess of Buchan was put into close confinement in the castle of Berwick (†).

About this time also many others of Bruce's party

were put to death; among whom were Thomas and Alexander Bruce, two of the king's brothers, and John Wallace, brother to the celebrated Sir William. Bruce himself, in the mean time, was in such a despicable situation, that it was thought he never could give more disturbance; and it was even reported that he was dead. All his misfortunes, however, could not intimidate him, or prevent his meditating a most severe revenge upon the destroyers of his family. He first removed to the castle of Dumbarton, where he was hospitably received and entertained by Angus lord of Kintyre; but, suspecting that he was not safe there, he sailed in three days to Rachrin, a small island on the Irish coast, where he secured himself effectually from the pursuit of his enemies. It was during his stay in this island, that the report of his death was generally propagated. Notwithstanding this, his party increased considerably; and, even when he landed on this island, he was attended by 300 men. However, after having lived for some time in this retreat, being apprehensive that the report of his death might be generally credited among his friends in Scotland, it was resolved to attempt the surprise of a fort held by the English under Sir John Hastings, on the isle of Arran. This was performed with success by his two friends Douglas and Sir Robert Boyd, who put the greatest part of the garrison to the sword. The king, hearing of their success, passed over into Arran; but, not knowing where his people resided, is said to have found them out by blowing a horn. He then sent a trusty servant, one Cuthbert, into his own country of Carrick; with orders, in case he found it well affected

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(†) M. Westminster, p. 455. says, "Capitur etiam et illa impiissima conjuratrix de Buchan, de qua consultus Rex, ait, Quia gladio non percussit, gladio non peribit; verum, propter illicitam conjurationem quam fecit, in domicilio lapideo et ferro, in modum coronæ fabricato, firmissime obstruatur, et apud Bervicum sub dio forissecus suspendatur, ut sit data, in vita et post mortem, speculum viatoribus, et opprobrium sempiternum." Other English historians, copying M. Westminster, have said the same thing. We cannot, therefore, blame Abercrombie for saying, "She was put in a wooden cage shaped like a crown, and in that tormenting posture hung out from high walls or turrets to be gazed upon and reproached by the meanest of the multitude." Vol. I. p. 579. Hemingford, Vol. I. p. 221. relates the story in a manner somewhat different. He says, that the earl of Buchan her husband fought to kill her for her treason; but that Edward restrained him, and ordered her to be confined in a wooden cage.

The intentions of Edward I. touching the duration of the countess of Buchan, will be more certainly learned from his own orders, than from the report of M. Westminster. His orders run thus: "By letters under the privy-seal, be it commanded, that the chamberlain of Scotland, or his deputy at Berwick upon Tweed, do, in one of the turrets of the said castle, and in the place which he shall find most convenient, cause construct a cage strongly latticed with wood (*de fuis*, i. e. beams of timber or palisades), cross-barred, and secured with iron, in which he shall put the countess of Buchan. And that he take care that she be so well and safely guarded therein, that in no sort she may issue therefrom. And that he appoint one or more women of Berwick, of English extraction, and liable to no suspicion, who shall minister to the said countess in eating and drinking, and in all things else convenient, in her said lodging place. And that he do cause her to be so well and strictly guarded in the cage, that she may not speak with any one, man or woman, of the Scottish nation, or with any one else, saving with the women who shall be appointed to attend her, or with the guard who shall have the custody of her person. And that the cage be so constructed, that the countess may have therein the convenience of a decent chamber (*element de chambre courtoise*); nevertheless, that all things be so well and surely ordered, that no peril arise touching the right custody of the said countess. And that he to whom the charge of her is committed shall be responsible, body for body; and that he be allowed his charges." *Fœdera* I. ii. p. 1014.

Such were the orders of Edward I. and he surely was not a man who would suffer his orders to be disobeyed. Here, indeed, there is a detail concerning the custody of a female prisoner, which may seem ridiculously minute, but which is inconsistent with the story related by M. Westminster and other historians. To those who have no notion of any cage but one for a parrot or a squirrel, hung out at a window, we despair of rendering this mandate intelligible.

Scotland:

144
And the
castle of
Tunberry
in Carrick.

145
Douglas re-
covers his
own estate.

146
The Eng-
lish twice
defeated by
Robert,

to his cause, to light a fire on a certain point near his castle of Tunberry, whence it could be discerned in Arran. Bruce and his party perceived the signal, as they thought, and immediately put to sea. Their voyage took up but little time; and as Bruce had now 400 men along with him, he resolved immediately to act on the offensive. His first exploit was to surprise his own castle of Tunberry, which had been given, along with Bruce's estate, to lord Henry Percy. Him he drove out, along with the English garrison; but, in the mean time, he met with his servant Cuthbert, who gave him disagreeable intelligence. This man had met with very little encouragement on his landing in Scotland; in consequence of which he had not lighted the fire agreed upon as a signal of his success, that which Bruce had observed having been kindled by accident. He also told him, that the English were in full possession of the country; and advised his master to be upon his guard. Soon after this the king was joined by a lady of fortune, who brought along with her 40 warriors. By her he was first particularly informed of the miserable state of his family and relations; which, instead of disheartening, animated him the more with a desire of revenge. However, he did not immediately attempt any thing himself, but allowed Douglas to attempt the recovery of his estate of Douglasdale, as Bruce himself had recovered his in Carrick. In this expedition Douglas was joined by one Thomas Dickson, a man of considerable fortune, and who gave him intelligence concerning the state of the country. By his advice he kept himself private till Palm Sunday; when he and his followers with covered armour repaired to St Bride's church, where the English were performing divine service. The latter were surprised, but made a brave defence; though, being overpowered by numbers, they were at last obliged to yield. Douglas, without farther resistance, took possession of his own castle, which he found well furnished with arms, provisions, and money. He destroyed all that he could not carry with him, and also the castle itself, where he knew that he must have been besieged if he had kept it.

While Bruce and his friends were thus signaling themselves, and struggling with the English under so many disadvantages, it is natural to think that they must have met with many dangerous and difficult adventures. Many of these, indeed, are related by the Scots historians; but most of them have the appearance of fables, and it is now impossible to distinguish the true from the false; for which reason we shall pass them all over in silence, confining ourselves only to those facts which are at once important and well authenticated.

In 1307, the earl of Pembroke advanced into the west of Scotland to encounter Bruce. The latter did not decline the combat; and Pembroke was defeated. Three days after this, Bruce defeated with great slaughter another English general named Ralph de Monthermer, and obliged him to fly to the castle of Air. The king laid siege to the castle for some time, but retired at the approach of succours from England. This year the English performed nothing, except burning the monastery at Paisley. Edward, however, resolved still to execute his utmost vengeance on the Scots, though he had long been retarded in his operations by a tedious and dangerous indisposition. But now, sup-

posing that his malady was decreased so far that he could safely proceed on his march, he offered up the horse-litter, in which he had hitherto been carried, in the cathedral church of Carlisle; and, mounting himself on horseback, proceeded on the way towards Solway. He was so weak, however, that he could advance no farther than six miles in four days; after which he expired in sight of Scotland, which he had so often devoted to destruction. With his dying breath he gave orders that his body should accompany his army into Scotland, and remain unburied until the country was totally subdued; but his son, disregarding this order, caused it to be deposited in Westminster abbey.

The death of such an inveterate enemy to the Scottish name, could not fail of raising the spirits of Bruce and his party; and the inactive and timid behaviour of his son Edward II. contributed not a little to give them fresh courage. After having granted the guardianship of Scotland to his favourite Piers de Gaveston earl of Pembroke, whom his father had lately banished, he advanced to Cumnock, on the frontiers of Ayrshire, and then retreated into England; conferring the office of guardian of Scotland upon John de Bretagne earl of Richmond, a fortnight after he had bestowed it on Gaveston. He was no sooner gone than Bruce invaded Galloway. The inhabitants refusing to follow his standard, he laid waste the country; but was defeated, and obliged to retire northwards by the guardian. In the north he over-ran the country without opposition; and soon began to move southwards again in order to repair his late disgrace. He was encountered by Comyn earl of Buchan with an undisciplined body of English, whom he entirely defeated and dispersed. But about this time he was seized with a grievous distemper, which weakened him so much, that no hopes were left of his recovery. In this enfeebled situation, he was attacked by the earl of Buchan and John Mowbray an English commander, who had assembled a body of troops in order to efface their late dishonour. The armies met at Inverury in Aberdeenshire. Bruce was too weak to support himself, and therefore was held upon horseback by two attendants: but he had the pleasure of seeing his enemies totally defeated, and pursued with great slaughter for many miles; and it is reported, that the agitation of his spirits on that day proved the means of curing him of his disease. This battle was fought on the 22d of May 1308.

The king of Scotland now took revenge of his enemies, after the manner of that barbarous age, by wasting the country of Buchan with fire and sword. His successes had so raised his character, that many of the Scots who had hitherto adhered to the English cause, now came over to that of Robert. Edward, the king's brother, invaded Galloway, and defeated the inhabitants of that country. John de St John, an English commander, with 1500 horsemen, attempted to surprise him; but Edward having received timely information of his designs, ordered the infantry and meaner part of his army to entrench themselves strongly, while he himself, with no more than 50 horsemen, well armed, under cover of a thick mist, attacked his enemies, and put them to flight. After this he reduced all the fortresses in the country, and totally expelled the English from it. About this time also, Douglas, when roving about the mountainous

147
Death of
Edward

148
Robert
seated in
Galloway

149
He defeat-
ed the Eng-
lish in his
turn, and re-
covered from
dangerous
disease,

150
Successor
Edward
Bruce,

tainous parts of Tweedale, surpris'd and made prisoners Thomas Randolph the king's nephew, and Alexander Stewart of Bonkhill, who had hitherto continued inimical to the interests of Robert. Randolph was conducted to the king, but talked to him in an haughty strain; upon which his uncle put him into close confinement.

The next exploit of Robert was against the lord of Lorn, a division of Argyleshire. It was this nobleman who had reduced the king to such straits after his defeat at Methven; and he now resolv'd to take ample revenge. Having enter'd the country, the king arriv'd at a narrow pass, where the troops of Lorn lay in ambush. This pass had a high mountain on the one side, and a precipice wash'd by the sea on the other; but Robert having order'd Douglas to make a circuit and gain the summit of the mountain with part of the army, he enter'd himself with the rest. He was immediately attack'd; but Douglas with his men rush'd down the hill, and decid'd the victory in favour of the king; who soon after took the castle of Dunstaffnage, the chief residence of this nobleman.

While Robert and his associates were thus gaining the admiration of their countrymen by the exploits which they daily performed, the English were so unsettled and fluctuating in their counsels, that their party knew not how to act. Edward still imagin'd that there was a possibility of reconciling the Scots to his government: and for this purpose he employ'd William de Lambyton, bishop of St Andrew's, who, after having been taken prisoner, and carried from one place of confinement to another, had at last made such submissions, as procur'd first his liberty, and then the confidence of Edward. This ecclesiastic having taken a most solemn oath of fidelity to Edward, now resolv'd to ingratiate himself, by publishing against Robert and his adherents a sentence of excommunication, which had been resolv'd on long before. This, however, produc'd no effect; and the event was, that in 1309, through the mediation of the king of France, Edward consented to a truce with the Scots. This pacific disposition, however, last'd not long. The truce was scarcely concluded, when Edward charg'd the Scots with violating it, and summon'd his barons to meet him in arms at Newcastle: yet, probably being doubtful of the event of the war, he empower'd Robert de Umfraville, and three others, to conclude a new truce; declaring, however, that he did this at the request of Philip king of France, as his dearest father and friend, but who was in no sort to be consider'd as the ally of Scotland.

The new negotiations were soon interrupted. They were again renew'd; and in the beginning of the year 1310 the truce was concluded, but entirely disregarded by the Scots. The progress of Bruce now became very alarming. The town of Perth, a place at that time of great importance, was threaten'd; and to relieve it, Edward order'd a fleet to sail up the river Tay: he also command'd the earl of Ulster to assemble a body of troops at Dublin, and from thence to invade Scotland; his own barons were order'd to meet him in arms at Berwick. About the end of September, he enter'd Scotland; pass'd from Roxburgh, through the forest of Selkirk, to Biggar; from thence he penetrat'd into Renfrew; and turning back by the way of

Linlithgow, he retreat'd to Berwick, where he continued inactive for eight months.

During this invasion, Robert had carefully avoid'd a battle with the English; well knowing, that an invasion undertaken in autumn would ruin the heavy-armed cavalry, on which the English plac'd their chief dependence. His cause was also favour'd by a scarcity which prevail'd at this time in Scotland; for as magazines and other resources of modern war were then unknown, the English army were greatly retard'd in their operations, and found it impossible to subsist in the country.

The spirit of enterprise had now communicat'd itself to all ranks of people in Scotland. In 1311, the castle of Linlithgow was surpris'd by a poor peasant, named *William Binnock*. The English garrison were secure, and kept but a slight guard; of which Binnock being inform'd, conceal'd eight resolute men in a load of hay, which he had been employ'd to drive into the castle. With these, as soon as the gate was open'd, he fell upon the feeble guard, and became master of the place; which was dismantl'd by Robert, as well as all the other castles taken in the course of the war.

Edward now resolv'd to invade Scotland again; and for this purpose order'd his army to assemble at Roxburgh. But Robert, not contented with defending his own country, resolv'd in his turn to invade England. He accordingly enter'd that country, and cruelly ravag'd the bishopric of Durham. He return'd loaded with spoil, and laid siege to Perth. After remaining six weeks before that place, he rais'd the siege, but return'd in a few days; and having provided scaling ladders, approach'd the works with a chosen body of infantry. In a dark night he made the attack; and having waded through the ditch though the water flood to his throat, he was the second man who reach'd the top of the walls. The town was then soon taken; after which it was plunder'd and burnt, and the fortifications levelled with the ground. This happen'd on the 8th of January 1312.

Edward was now become averse to the war, and renew'd his negotiations for a truce; but they still came to nothing. Robert again invaded England; burnt great part of the city of Durham; and even threaten'd to besiege Berwick, where the king of England had, for the time, fix'd his residence. He next reduc'd the castles of Butel, Dumfries, and Dalwinton, with many other fortresses. The castle of Roxburgh, a place of the utmost importance, next fell into his hands. The walls were scal'd while the garrison was revelling on the eve of Lent. They retreat'd into the inner tower; but their governor, a Frenchman, having received a mortal wound, they capitulat'd.

Randolph, the king's nephew, who had been imprison'd, as we have already observ'd, was now receiv'd into favour, and began to distinguish himself in the cause of his country. He blockad'd the castle of Edinburgh so closely, that all communication with the neighbouring country was cut off. The place was command'd by one Leland, a knight of Gascony; but ken by the garrison suspecting his fidelity, imprison'd him in a dungeon, and chose another commander in his stead. One William Frank present'd himself to Randolph, and inform'd him how the walls might be scal'd. This man in his youth had resid'd in the castle; and having

Scotland, an intrigue with a woman in the neighbourhood, had been accustomed to descend the wall, during the night, by means of a ladder of ropes; whence, by a steep and difficult path, he arrived at the foot of the rock. Randolph himself, with 30 men, undertook to scale the castle walls at midnight. Frank was their guide, who still retained a perfect memory of the path, and who first ascended the wall. But before the whole party could reach the summit, an alarm was given, the garrison ran to arms, and a desperate combat ensued. The English fought valiantly till their commander was killed; after which they threw down their arms. Leland, the former governor, was released from his confinement, and entered into the Scottish service.

158 Robert invades England, and reduces the Isle of Man. In 1313, king Robert found the number of his friends increasing with his successes. He was now joined by the earl of Athol, who had lately obtained a grant of lands from Edward. This year, through the mediation of France, the conferences for a truce were renewed. These, however, did not retard the military operations of the Scots. Cumberland was invaded and laid waste; the miserable inhabitants besought Edward's protection; who commended their fidelity, and desired them to defend themselves. In the mean time, Robert, leaving Cumberland, passed over into the isle of Man, which he totally reduced. Edward found great difficulties in raising the supplies necessary for carrying on the war; but at last overcame all these, and, by the beginning of the year 1314, was prepared to invade Scotland with a mighty army. In March he ordered his ships to be assembled for the invasion; invited to his assistance Eth O'Connor, chief of the Irish of Connaught, and 26 other Irish chiefs; summoned them and his subjects in Ireland to attend his standard, and gave the command of these auxiliaries to the earl of Ulster. His barons were summoned to meet him at Berwick on the 11th of June; and 22,000 foot-soldiers, from the different counties of England and Wales, were required by proclamation to assemble at Wark.

159 Edward Bruce enters into an imprudent treaty with the governor of Stirling. In the mean time, the successes of the Scots continued. Edward Bruce had reduced the castles of Rutherglen and Dundee, and laid siege to the castle of Stirling. The governor of the place agreed to surrender, if he was not relieved before the 24th of June 1314; and to this Edward agreed, without consulting his brother. The king was highly displeased with this rash treaty, which interrupted his own operations, allowed the English time to assemble their utmost force, and at last obliged him either to raise the siege or to put all on the event of a single battle. However, he resolved to abide by the agreement, and to meet the English by the appointed day. Having appointed a general rendezvous of his forces between Falkirk and Stirling, he found their number to amount to somewhat more than 30,000, besides upwards of 15,000 of an undisciplined rabble that followed the camp. He determined to wait the English in a field which had the brook or burn of Bannock on the right, and Stirling on the left. His chief dread was the strength and number of the English cavalry, and these he took every method to oppose. The banks of the brook were steep in many places, and the ground between it and Stirling was partly covered with wood. The king commanded many pits, of about a foot in breadth and two or three feet deep, to be dug in all places where ca-

160 Which brings on the decisive engagement of Bannockburn.

valry could have access. From the description given of them by the historians of those times, there seem to have been many rows of them, with narrow intervals. They were carefully covered with brushwood and sod, so that they would easily be overlooked by a rash and impetuous enemy. It is said by some authors, that he also made use of caltrops, to annoy the horses in the most effectual manner.

On the 23d of June, the Scots received intelligence of the approach of Edward, and prepared to decide the fate of their country. The front of their army extended from the brook called *Bannockburn* to the neighbourhood of St Ninians, pretty nearly upon the line of the present turnpike-road from Stirling to Kilfyth; and the stone in which the king is said to have fixed his standard is still to be seen. Robert commanded all his soldiers to fight on foot. He gave the command of the centre to Douglas, and Walter the young steward of Scotland; his brother Edward had the command of the right wing, and Randolph of the left; the king himself taking charge of the reserve, which consisted of the men of Argyle, Carrick, and the islanders. In a valley to the rear, said to be to the westward of a rising ground now called *Gilles-hill*, he placed the baggage, and all the useless attendants on his army.

Randolph was commanded to be vigilant in preventing the English from throwing succours into the castle of Stirling; but 800 horsemen, commanded by Sir Robert Clifford, made a circuit by the low grounds to the east, and approached the castle. The king, perceiving their motions, chid Randolph for his inadvertency, on which the latter halted to encounter that body. As he advanced, the English wheeled to attack him. Randolph drew up his men in a circular form, holding out their spears on every side. At the first onset Sir William Daynecourt, an English commander of distinguished valour, was killed; but Randolph, who had only a small party with him, was surrounded on all sides, and in the utmost danger. Douglas perceived his danger, and requested the king to let him go to his assistance. Robert at first refused, but afterwards consented with reluctance. Douglas set out without delay; but as he approached he saw the English falling into disorder; upon which he called to his men to stop, and not diminish the glory of Randolph and his men by sharing their victory.

Robert was in the front of the line when the vanguard of the English appeared. He was meanly dressed, with a crown above his helmet, and a battle-ax in his hand. Henry de Bohun, an English knight, armed cap-a-pee, rode forward to encounter him. Robert did not decline the combat, and struck his antagonist so violently with his battle-ax, that he is said to have cleft him down to the chin; after which the English vanguard retreated in confusion. The Scottish generals are said to have blamed their king for his rashness in thus encountering Bohun; and he himself, conscious of the justice of their charge, only replied, "I have broke my good battle-ax."

On Monday the 24th of June, the whole English army moved on to the attack. The van, consisting of archers and lancemen, was commanded by Gilbert de Clare earl of Gloucester, nephew to the English king, and Humphry de Bohun constable of England; but the ground was so narrow, that the rest of the army had not sufficient

sufficient room to expand itself; so that it appeared to the Scots as consisting of one great compact body. The main body was brought up by Edward in person, attended by Aymer de Valence earl of Pembroke, and Sir Giles d'Argentine, two experienced commanders. Maurice abbot of Inchaffray, placing himself on an eminence, celebrated mass in the sight of the Scottish army. He then passed along the front, barefooted, with a crucifix in his hands, and in few words exhorted the Scots to fight for their rights and liberty. The Scots fell down on their knees; which being perceived by Edward, he cried out, "They yield! See, they implore mercy." "They do," answered Umfraville, one of his commanders, "they do implore mercy, but not from us. On that field they will be victorious or die."

As both parties were violently exasperated against each other, the engagement began with great fury. The king of Scotland, perceiving that his troops were grievously annoyed by the English archers, ordered Sir Robert Keith the marischal, with a few armed horsemen, to make a circuit and attack the archers in flank. This was instantly accomplished; and as the weapons of the archers were useless in a close encounter, they could make very little resistance, at the same time that their flight spread disorder through the whole army.

Robert now advanced with the reserve: the whole English army was in the utmost confusion; for the defeat of the archers had decided the victory in favour of the Scots. The young and gallant earl of Gloucester attempted to rally the fugitives, but was thrown from his horse, and cut in pieces, which increased the general confusion. At this critical moment, the numerous attendants on the Scottish camp, prompted by curiosity or the desire of plunder, issued from their retirement. The English mistook them for a body of fresh troops coming to the assistance of their enemies, and fled with precipitation on all sides. Many sought refuge among the rocks in the neighbourhood of Stirling castle, and many were drowned in the rivers. Pembroke and Sir Giles d'Argentine had never quitted Edward during the action; but now, seeing the battle irretrievably lost, Pembroke constrained the king to quit the field. D'Argentine refused to fly. He was a man of great valour, and had a high reputation in Scotland. According to the vulgar opinion, the three most eminent worthies in that age were the emperor Henry of Luxemburg, Robert Bruce, and Giles d'Argentine. He is said to have thrice encountered two Saracen warriors in Palestine, and to have killed them both each time. His valour now availed him but little; for rushing into the midst of the Scots army, he was instantly cut in pieces. Douglas, with 60 horsemen, pursued Edward close. At the Torwood he met Sir Lawrence Abernethy, who was hastening to the English rendezvous with twenty horsemen. The latter soon abandoned the cause of the vanquished, and joined Douglas in the pursuit of Edward, who fled to Linlithgow. He had scarcely arrived there, when he was alarmed by the approach of the Scots, and again obliged to fly. Douglas and Abernethy followed him with such assiduity, that (as Lord Hailes chooses to Latinize the expression of an ancient historian) *ne vel mingendi locus concederetur*; but, notwithstanding their utmost efforts, Edward got safe to Dunbar, where he was received by the earl of March, who protected him till he could be conveyed by sea to England.

Such was the decisive battle of Bannockburn, the greatest defeat the English ever sustained from the Scots. On the side of the latter no persons of note were slain, excepting Sir William Vipont, and Sir Walter Ross the favourite of Edward Bruce; and so grievously was Edward afflicted by the death of this man, that he exclaimed, "O that this day's work were undone, so Ross had not died!" On the English side were slain 27 barons and bannerets, and 22 taken prisoners; of knights there were killed 42, and 60 taken prisoners; of esquires there fell 700; but the number of the common men who were killed or taken was never known with any certainty. The Welsh who had served in the English army were scattered over the country, and cruelly butchered by the Scottish peasants. The English, who had taken refuge among the rocks in the neighbourhood of Stirling, surrendered at discretion: the castle was surrendered, and the privy-seal of England fell into the hands of the king of Scots. The spoils of the English camp were immense, and enriched the conquerors, along with the ransom of many noble prisoners who fell into their hands. Robert showed much generosity in his treatment of the prisoners who fell to his share. He set at liberty Ralph de Monthermer, and Sir Marmaduke Twerge, two officers of high rank, without ransom; and by humane and generous offices alleviated the misfortune of the rest. The dead bodies of the earl of Gloucester and the lord Clifford were sent to England, that they might be interred with the usual solemnity. There was one Baston, a Carmelite friar and poet, whom Edward is said to have brought with him in his train to be spectator of his achievements, and to record his triumphs. Baston was made prisoner, and obliged to celebrate the victory of Robert over the English. This he did in wretched Latin rhymes; which, however, procured him liberty. After the battle of Bannockburn, the earl of Hereford retreated to the castle of Bothwell, where he was besieged by Edward Bruce, and soon obliged to surrender. He was exchanged for the wife, sister, and daughter of the king, the young earl of Marr, and the bishop of Glasgow.

The terror of the English after the defeat at Bannockburn is almost incredible. Walsingham asserts, that many of them revolted to the Scots, and assisted them in plundering their own country. "The English," says he, "were so bereaved of their wonted intrepidity, that an hundred of that nation would have fled from two or three Scotsmen." Edward Bruce and Douglas entered England on the eastern side, ravaged Northumberland, and laid the bishopric of Durham under contribution. From thence they proceeded to Richmond, laid Appleby and some other towns in ashes, and returned home loaded with plunder. Edward summoned a parliament at York, in order to concert means for the public security; and appointed the earl of Pembroke, formerly the guardian of Scotland, to be guardian of the country between the Trent and the Tweed. Robert, however, sent ambassadors to treat of a peace; but the Scots were too much elated with their good fortune to make concessions, and the English were not yet sufficiently humbled to yield to all their demands. The ravages of war were again renewed: the Scots continued their incursions into England, and levied contributions in different places.

In 1315, the English affairs seemed a little to revive.

Scotland
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Expedition
of Edward
Bruce into
Ireland,

The Scots, indeed, plundered Durham and Hartlepool; but they were repulsed from Carlisle, and failed in an attempt on Berwick. The Irish of Ulster, oppressed by the English government, implored the assistance of Robert, and offered to acknowledge his brother Edward as their sovereign; who accordingly landed at Carrickfergus on the 25th of May 1315, with 6000 men.— This was an enterprize evidently beyond the power of Scotland to accomplish, and which could not but be perceived by Robert. However, there were motives which induced him to consent. The offer of a crown, though ever so visionary, inflamed the ambition of Edward Bruce, whose impetuous valour made no account of difficulties, however great. It might have been deemed ingenuous, and perhaps would not have been politic or safe, to have rejected the proposals of the Irish for the advancement of his brother, to whom the king owed more than he could repay. Besides, the invasion of Ireland seemed a proper expedient for dividing the English forces. The event proved unfortunate. Edward, after performing and suffering more than could almost have been expected from human nature, was at last defeated and killed by the English, as is related under the article IRELAND, n° 42.

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He is de-
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Unsuccess-
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The king himself had gone over into Ireland, in order to assist his brother in attempting the subjection of that country; and during his absence the English had made several attempts to disturb the tranquillity of Scotland. The earl of Arundel invaded the forest of Jedburgh with a numerous army; but being drawn into an ambuscade by Douglas, he was defeated with great loss. Edmund de Cailaud, a knight of Gascony and governor of Berwick, invaded and wasted Teviotdale; but while he was returning home loaded with spoil, he was attacked, defeated, and killed by Douglas. Soon after this, intelligence was conveyed to Douglas that one Robert Neville had boasted that he would encounter him whenever he saw his banner displayed. Douglas did not long delay to give him an opportunity. He advanced to the neighbourhood of Berwick, displayed his banner, and burnt some villages. Neville, provoked at these ravages, took the field, encountered Douglas, and was defeated and killed. By sea the English invaded Scotland, and anchored off Inverkeithing in the frith of Forth, where they soon after landed. Five hundred men, under the command of the earl of Fife and the sheriff of that country, attempted to oppose their landing, but were intimidated by the number of their enemies. William Sinclair bishop of Dunkeld happened to meet the fugitives; and having by his reproaches obliged them to rally, he led them on again to the charge, and drove the English to their ships with considerable loss. For this exploit Robert conferred the title of *the king's bishop* on Sinclair; and he was long remembered by his countrymen on this account.

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Negotia-
tions with
the Pope,

In 1317, after king Robert had returned from his Irish expedition, a bull was issued by the pope (John XXII.) commanding a two years truce between England and Scotland, under pain of excommunication. Two cardinals were dispatched into Britain to make known his commands; and they were privately empowered to inflict the highest spiritual censures on Robert Bruce, or whomsoever else they thought proper. About the beginning of September 1317, two messengers were sent to Robert by the cardinals. The king gave them

a gracious reception; and after consulting with his barons, returned for answer, that he very much desired a good and perpetual peace, either by the mediation of the cardinals, or by any other means. He allowed the open letters from the pope, which recommended peace, to be read in his presence, and listened to them with due respect. But he would not receive the sealed letters addressed to Robert Bruce governor of Scotland, alleging, that there might be many of his barons whose names were Robert Bruce, and that these barons might probably have some share in the government. Unless, therefore, the letters were addressed to him as *king of Scotland*, he could not receive them without advice of his parliament, which he promised immediately to assemble on the occasion. The messengers attempted to apologise for the omission of the title of KING. "The holy church was not wont," they said, "during the dependence of a controversy, to write or say any thing which might be interpreted as prejudicial to the claims of either of the contending parties." "Since then," answered the king, "my spiritual father and my holy mother would not prejudice the cause of my adversary having by bestowing on me the appellation of *king* during the dependence of the controversy, they ought not to have prejudiced my cause by withdrawing that appellation from me. I am in possession of the kingdom of Scotland; all my people call me king; and foreign princes address me under that title; but it seems that my parents are partial to their English son. Had you presumed to present letters with such an address to any other sovereign prince, you might perhaps have been answered in a harsher style; but I reverence you as the messengers of the holy see."

The messengers, quite abashed with this reply, changed the discourse, and requested the king that he would consent to a temporary cessation of hostilities; but to this he declared, that he never would consent, while the English daily invaded and plundered his people. His counsellors, however, informed the messengers, that if the letters had been addressed to the *king of Scots*, the negotiations would instantly have been opened. This disrespectful omission they imputed to the intrigues of the English at the court of Rome, hinting at the same time that they had received this intelligence from Avignon.

When the messengers had informed the cardinals of these proceedings, the latter determined to proclaim the papal truce in Scotland; in which hazardous office they employed Adam Newton, guardian of the monastery of Minorites at Berwick, who was charged with letters to the clergy of Scotland, particularly to the bishop of St Andrew's. The monk found the king encamped with his army in a wood near Old Cambus, making preparations for assaulting Berwick. Personal access was denied to the king; but the monk, in obedience to his masters, proclaimed the truce by the authority of the pope. The king sent him for answer, that he would listen to no bulls, till he was treated as king of Scotland, and had made himself master of Berwick.

The poor monk, terrified at this answer, requested either a safe conduct to Berwick, or permission to pass into Scotland, and deliver his letters to the Scottish clergy. Both were refused; and he was commanded to leave the country without loss of time. He set out for Berwick; but in his way thither was attacked by robbers,

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robbers, or some who pretended to be so. By them he was stripped and robbed of all his parchments, together with his letters and instructions; the robbers also, it is said, rose the pope's bull, without any regard to its sanctity.

In 1318, king Robert proceeded in his enterprize against Berwick, but resolved to employ artifice as well as force in the reduction of it. A citizen of Berwick, by name *Spalding*, having been ill used by the governor, resolved to revenge himself; and therefore wrote a letter to a certain Scottish lord, whose relation he had married, offering on a certain night to betray the post where he kept guard. The nobleman communicated this important intelligence to the king. "You did well," said Robert, "in making me your confident; for if you had told this either to Randolph or Douglas, you would have offended the one whom you did not trust: Both of them, however, shall aid you in the execution of the enterprize." The king then commanded him to repair to a certain place with a body of troops; to which place he also gave separate orders to Douglas and Randolph to repair at the same hour, each with a body of troops under his command. The forces thus cautiously assembled marched to Berwick, and, assisted by *Spalding*, scaled the walls, making themselves masters of the town in a few hours. The garrison of the castle, perceiving that the number of Scots was but small, made a desperate sally with the men who had fled into the castle from the town; but, after an obstinate conflict, they were defeated and driven back, chiefly by the extraordinary valour of a young knight named *Sir William Keith of Galfston*.—This happened on the 28th of March 1318.

King Robert no sooner heard of the success of his forces against the town, than he hastened to lay siege to the castle of Berwick. This was soon obliged to capitulate; after which the Scots entered Northumberland, and took the castles of Wark, Harbottle, and Mitford. In May, they again invaded England, and penetrated into Yorkshire. In their progress they burnt the towns of Northallerton, Boroughbridge, Scarborough, and Skipton in Craven, forcing the inhabitants of Rippon to redeem themselves by paying 1000 marks: after which they returned to Scotland with much booty; and, as an English historian expresses it, "driving their prisoners before them like flocks of sheep."

This year the interposition of the pope was obtained against Robert, with a view to intimidate the Scottish nation; and the two cardinals residing in England were commanded to excommunicate *Robert Bruce and his adherents*, on account of his treatment of the messengers of the holy see, and his assault of Berwick, after a truce had been proclaimed by the papal authority.—This sentence was accordingly put in execution, though Robert had certainly been excommunicated *once*, if not oftener, before. Messengers were sent from Scotland to Rome, in order to procure a reversal of the sentence; but Edward dispatched the bishop of Hereford, and Hugh d'Espercer the Elder, to counteract this negotiation, informing his holiness at the same time of certain intercepted letters which had been written from Avignon to Scotland; upon which the pope ordered all the Scots residing at Avignon, and all of that place who had corresponded with Scotland, to be taken into custody.

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The most remarkable transaction of this year, however, was the defeat and death of Edward Bruce in Ireland; of which an account is given under the article IRELAND, n° 42. His body was quartered, and distributed for a public spectacle over Ireland; and his head was presented to Edward by John lord Bermingham the commander of the English army; in return for which service, he was rewarded with the title of *earl of Louth*.

In the mean time Edward, who had summoned a parliament to meet at Lincoln, was obliged to prorogue it on account of the Scottish invasion, and to assemble an army at York for the defence of his country. At Michaelmas it was determined, in a parliament held at London, that every city and town in England should furnish a certain proportion of men completely armed. Thus a considerable body of troops was soon raised; but, when they assembled at York, their party-animosities and mutual distrust rose to such an height, that it was found necessary to send them back to their habitations.

In 1319, Edward, having succeeded so well in his negotiations with the court of Rome, resolved to make similar attempts with other powers to the prejudice of the Scottish nation. Accordingly he requested the count of Flanders to prohibit the Scots from entering his country: but to this request he received the following remarkable reply: "Flanders is the common country of all men; I cannot prohibit any merchants from trafficking thither, for such prohibition would prove the ruin of my people." Finding himself baffled in this attempt, the English monarch once more determined to have recourse to war; and with this view commanded his army to assemble at Newcastle upon Tyne, on the 24th of July 1319: but before he proceeded, he requested the prayers of the clergy for the success of his expedition; and, to render their prayers the more effectual, he at the same time demanded from them a great sum of money by way of loan.

Every thing being now in readiness, the English army approached Berwick, which was commanded by Walter the Steward of Scotland. This nobleman had long apprehended an attack from the English, and had taken every means of defence in his power. The enemy, however, confiding in their numbers, made a general assault; but were repulsed on the 7th of September, after a long and obstinate contest. Their next attempt was on the side towards the river. At that time the walls of Berwick were of an inconsiderable height; and it was proposed to bring a vessel close to them, from whence the troops might enter by a drawbridge let down from the mast. But the Scots annoyed the assailants so much, that they could not bring this vessel within the proper distance; and at the ebb of the tide it grounded, and was burnt by the besieged.—The English had then recourse to a new-invented engine which they called a *sow*, but for what reason is unknown. In many particulars it resembled the *testudo* or *arietaria* of the ancients. It appears to have been a large fabric composed of timber, and well-roofed, having stages within it, and in height surpassing the wall of the town. It was moved upon wheels, and served for the double purpose of conducting the miners to the foot of the wall, and armed men to the storm. This machine was counteracted by one constructed by John

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Scotland. Crab, a Flemish engineer, in the Scots service. This was a kind of moveable crane, whereby great stones might be raised on high, and then let fall upon the enemy. The English made a general assault on the quarter towards the sea, as well as on the land side; so that the garrison, exhausted by continual fatigue, could scarce maintain their posts. The great engine moved on to the walls; and, though stones were incessantly discharged against it from the crane, their effect was so small, that all hope of preserving Berwick was lost. At length a huge stone struck it with such force, that the beams gave way, and the Scots pouring down combustibles upon it, it was reduced to ashes. The English, however, still continued the attack. The Steward, with a reserve of 100 men, went from post to post, relieving those who were wounded or unfit for combat. One soldier of the reserve only remained with him when an alarm was given that the English had burnt a barrier at the port called *St Mary's*, possessed themselves of the draw-bridge, and fired the gate. The Steward hastened thither, called down the guard from the rampart, ordered the gate to be set open, and rushed out upon the enemy. A desperate combat ensued, and continued till the close of the day, when the English commanders withdrew their troops.

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Notwithstanding this brave defence, it was evident that the town could not hold out long without a speedy relief; and Robert could not, with any probability of success, attack the fortified camp of the English. He therefore determined to make a powerful diversion in England, in order to oblige Edward to abandon the undertaking. By order of the king, 15,000 men entered England by the western marches. They had concerted a plan for carrying off the queen of England from her residence near York; but being disappointed in this attempt, they laid waste Yorkshire. The archbishop of York hastily collected a numerous body of commons and ecclesiastics, with whom he encountered the Scots at Mitton, near Borough-bridge, in the north-riding of Yorkshire. The English were instantly routed; 3000 were left dead on the field, and great part of those who fled perished in the river Swale. In this action 300 ecclesiastics lost their lives. The news of this successful inroad alarmed the besiegers of Berwick. The barons whose estates lay to the southward remote from the Scottish depredations were eager for continuing the siege. But they were opposed by those of the north; who were no less eager to abandon the enterprise, and return to the defence of their own country. With them the earl of Lancaster concurred in opinion; who, understanding that his favourite manor of Pontefract was exposed to the ravages of the Scots, departed with all his adherents. Edward, upon this, drew off the remainder of his army, and attempted to intercept Randolph and Douglas; but they eluded him, and returned in safety to Scotland.

The unsuccessful event of this last attempt induced Edward seriously to think of peace; and accordingly a truce between the two nations was concluded on the 21st of December 1319; which interval of tranquillity the Scots made use of in addressing a manifesto to the pope in justification of their cause. This was drawn up in a spirited manner, and made a very considerable alteration in the councils of Rome. The pope, foreseeing that Robert would not be terrified into submis-

sions, ordered Edward to make peace with him in the best manner he could. A negotiation was accordingly set on foot; which soon terminated ineffectually; the truce was not renewed, and in 1322 a mutual invasion took place. The Scots penetrated into Lancashire by the western marches; and, after plundering the country, returned home with an extraordinary booty; while Edward made great preparations for an expedition into Scotland, which took place in August the same year. In this, however, he was not attended with success. Robert had caused all the cattle to be driven off, and all the effects of any value to be removed from Lothian and the Merse; fixing his camp at Culrofs, on the north side of the frith of Forth. His orders for removing the cattle were so punctually obeyed, that, according to common tradition, the only prey which fell into the hands of the English was a lame bull at Tra-nent in East Lothian. Edward, however, still proceeded, and penetrated as far as Edinburgh, but without any hopes of subduing the kingdom. His provisions being consumed, many of his soldiers perished for want; and he was obliged at last to retire without having seen an enemy. On their return, his soldiers burnt the abbeys of Holyrood, Melrofs, Dryburgh, &c. killed many of the monks, and committed other sacrileges: but when they returned to their own country, and began again to enjoy a plentiful living, they indulged themselves in such excesses as were productive of mortal diseases; insomuch that, according to an English historian, almost one half of the great army which Edward had brought from England with him were destroyed either by hunger or gluttony.

No sooner were the English retired than they were pursued by the Scots, who laid siege to the castle of Norham. Edward lay at the abbey of Biland in Yorkshire, with a body of troops advantageously posted in the neighbourhood. The Scots, invited, as is said, by some traitors about the king's person, attempted to surprise him; and it was with the utmost difficulty that he made his escape to York, abandoning all his baggage and treasure to the enemy. The English camp was supposed to be accessible only by a narrow pass, but Douglas undertook to force it, and Randolph presented himself as a volunteer in this dangerous service under his friend Douglas. The Highlanders and men of the Isles climbed the precipice on which the English camp stood, and the enemy were driven out with great loss. The Scots pursued them to the very gates of York, wasted the country without controul, and returned home unmolested.

Edward, disheartened by repeated losses, agreed to a cessation of arms "with the men of Scotland who were engaged in war with him." But the king of Scotland would not consent to it in that form; however, he gave his consent, on the proper form being employed, to which Edward now made no objection. This treaty was concluded on the 30th of March 1323, and was to endure until the 12th of June 1336. It was agreed, that, during the continuance of it, no new fortresses should be erected in Cumberland, to the north of the Tyne, or in the counties of Berwick, Roxburgh, or Dumfries; and by a very singular article it was provided, that "Bruce and the people of Scotland might procure absolution from the pope; but in case there was no peace concluded before the expiration of the

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land, truce, that the sentence of excommunication should revive." The treaty was ratified by Robert, under the style of the *king of Scotland*, 7th June 1323.

The next care of Robert was to reconcile himself to the church, and to obtain from the pope the title of *king*, which had been so long denied him; which at last, though not without great difficulty, was obtained. This year a son was born to the king of Scotland at Dunfermline, and named *David*. The court-poets of the time foretold, that this infant would one day rival his father's fame, and prove victorious over the English. But scarce had this future hero come into the world, when a rival began to make his appearance. John Baliol, the unfortunate king of Scotland, had long been dead; but left a son named *Edward*, heir to his pretensions to the crown. The young prince had resided on his paternal estate in Normandy, neglected and forgotten; but in 1324 was called to the court of England, for the purpose, undoubtedly, of setting him up as a rival to young David Bruce, in case his father, now broken with fatigues, should die in a short time. The negotiations for peace, however, still went on; but the commissioners appointed for this purpose made little progress, by reason of demands for feudal sovereignty still made by the English. The reconciliation with the church was also broken off, by reason of the Scots keeping possession of Berwick. This had been taken during the papal truce; and Robert thought proper still to lie under the sentence of excommunication rather than to part with such an important fortress.

In the beginning of the year 1327, Edward II. was deposed, and succeeded by his son Edward III. then in his 15th year. He renewed the negotiations for peace, and ratified the truce which his father had made; but hearing that the Scots had resolved to invade England if a peace was not immediately concluded, he summoned his barons to meet him in arms at Newcastle, and fortified York.—We are not certainly informed of the reasons which induced the Scots at this time to disregard the truce; however, it is certain, that on the 15th of June 1327, Douglas and Randolph invaded England by the western marches, with an army of 20,000 horsemen. Against them Edward III. led an army, consisting, at the lowest calculation, of 30,000 men, who assembled at Durham on the 13th of July. The Scots proceeded with the utmost cruelty, burning and destroying every thing as they went along; and on the 18th of the same month, the English discovered them by the smoke and flames which marked their progress. They marched forward in order of battle towards the quarter where the smoke was perceived; but, meeting with no enemy for two days, they concluded that the Scots had retired. Disencumbering themselves then of their heavy baggage, they resolved by a forced march to reach the river Tyne, and, by posting themselves on the north bank of that river, to intercept the Scots on their return. On the 20th of July, the cavalry having left the infantry behind, crossed the river at Haidon: but before the rest of the army could come up, the river was so swelled by sudden rains, that it could no longer be forded; and thus the troops remained divided for several days, without any accommodation for quarters, and in the greatest want of provisions and forage. The sol-

diers now began to murmur; and it was resolved again to proceed southwards. The king proclaimed a reward of lands, to the value of 100*l.* yearly for life, to the person who should first discover the enemy "on dry ground, where they might be attacked;" and many knights and esquires swam across the river on this strange errand. The army continued its march for three days without any news of the Scots; but on the fourth day, certain accounts of them were brought by an esquire, Thomas Rokesby: who reported, that "the Scots had made him prisoner; but that their leaders, understanding his business, had set him at liberty; saying, that they had remained for eight days on the same ground, as ignorant of the motions of the English as the English were of theirs, and that they were desirous and ready to combat." With this man for their guide, the English soon came in view of the Scots. They were advantageously posted on a rising ground, having the river Were in front, and their flanks secured by rocks and precipices. The English dismounted and advanced, hoping to allure the Scots from their strong post; but in vain. Edward then sent a herald to Randolph and Douglas, with a message in the style of chivalry: "Either," says he, "suffer me to pass the river, and leave me room for ranging my forces; or do you pass the river, and I will leave you room to range yours; and thus shall we fight on equal terms." To this the Scottish commanders answered, "We will do neither. On our road hither we have burnt and spoiled the country; and here we are fixed while to us it seems good; and if the king of England is offended, let him come over and chastise us."

The armies continued in sight of each other for two days; after which the English, understanding that their enemies were distressed for provisions, resolved to maintain a close blockade, and to reduce them by famine. Next day, however, they were surprised to find that the Scots had secretly decamped, and taken post two miles up the river in ground still stronger, and of more difficult access, amidst a great wood. The English encamped opposite to them near Stanhope park. At midnight Douglas undertook a most desperate enterprise, some attempt of what resembling those of the ancient heroes. With 200 horsemen he approached the English camp, and entered it under the guise of a chief commander calling the rounds. Having thus eluded the centinels, he passed on to the royal quarters, overthrew every thing that opposed him, and furiously assaulted the king's tent. The domestics of Edward desperately defended their master; and his chaplain, with many others of his household, were slain. However, the king himself escaped; and Douglas, disappointed of his prey, rushed through the enemy, and effected a retreat with inconsiderable loss.—The following day, the English learned from a prisoner, that orders had been issued in the Scottish camp for all men to hold themselves in readiness that evening to follow the banner of Douglas: on which, apprehending an attack in the night, they prepared for battle, lighting great fires, and keeping a strict watch; but in the morning, they were informed by two trumpeters whom they had taken prisoners, that the Scots had decamped before midnight, and were returning to their own country. This report could scarcely be credited, and the army remained for some hours in order of battle; but at length some scouts having crossed the river,

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Is obliged
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195
Desperate
attempt of
Douglas to
carry off
the king of
England.

196
The Scots
decamp,
and return
to their
own country.

Scotland. river, returned with certain intelligence that the Scottish camp was totally deserted: which when the young king of England was certainly informed of, he burst into tears; for the enterprise, which thus terminated in disappointment and dishonour, had cost an immense sum. Every preparation had been made for opposing an enemy, and auxiliaries had even been procured at a most enormous expence from Hainault. These auxiliaries consisted of heavy-armed cavalry; and they were now so much worn out, that they could scarcely move. Their horses were all dead, or had become unserviceable, in a campaign of three weeks; so that they were obliged to procure horses to convey themselves to the south of England. Edward having rested at Durham for some days, marched to York, where he disbanded his army. Barbour, a Scots historian, relates, that there was a morass in the rear of the Scottish camp, which he calls the *two-mile morass*; that the Scots made a way over it with brushwood, removing it as they went along, that the English might not pursue them by the same way. The English historians are filled with descriptions of the strange appearance of the deserted camp of the Scots. They found there a number of skins stretched between stakes, which served for kettles to boil their meat; and for bread, each soldier carried along with him a bag of oatmeal, of which he made cakes, toasting them upon thin iron plates, which appear to have been part of their armour.

On the return of Douglas and Randolph, the king led his army against the eastern borders, and besieged the castle of Norham. However, in 1328, Edward, wearied out with continual losses and disappointments, consented to a perpetual peace between the two kingdoms on the following conditions. 1. The stone on which the kings of Scotland were wont to sit at the time of their coronation, shall be restored to the Scots. 2. The king of England engages to employ his good offices at the papal court for obtaining a revocation of all spiritual processes depending before the holy see against the king of Scots, or against his kingdom or subjects. 3. For these causes, and in order to make reparation for the ravages committed in England by the Scots, the king of Scots shall pay 30,000 marks to the king of England. 4. Restitution shall be made of the possessions belonging to ecclesiastics in either kingdom, whereof they may have been deprived during the war. 5. But there shall not be any restitution made of inheritances which have fallen into the hands of the king of England or of the king of Scots, by reason of the war between the two nations, or through the forfeiture of former possessors. 6. Johanna, sister of the king of England, shall be given in marriage to David, the son and heir to the king of Scots. 7. The king of Scots shall provide the princess Johanna in a jointure of 2000 l. yearly, secured on lands and rents, according to a reasonable estimation. 8. If either of the parties shall fall in performing these conditions, he shall pay 2000 pounds of silver to the papal treasury.

This peace, ratified at Northampton, is styled *ignominious* by the English historians, and the marriage of the Scots prince to the king of England's sister, denominated *that base marriage*; because at this time all pretensions to sovereignty over Scotland were given up, though they had in vain attempted to establish them

by a ruinous war of 20 years. The marriage of the infant prince was celebrated on the 12th of July 1328.

On the 7th of June 1329 died Robert Bruce, unquestionably the greatest of all the Scottish monarchs. His death seems to have been occasioned by the excessive fatigues of military service; and his disease, called by the historians of those times a leprosy, was probably an inveterate scurvy, occasioned by his way of living. He died at the age of 55. He was married to Isabella, daughter of Donald the tenth earl of Marr; by whom he had a daughter named Marjory, married to Walter the steward of Scotland; whose husband died in 1326. The second wife of Robert was Elisabeth, the daughter of Aymer de Burgh earl of Ulster. By her he had a son, David II.; a daughter named Margaret, married to William earl of Sutherland; another, named Matilda, married to an esquire named Thomas Haac; and Elisabeth, married to Sir Walter Oliphant of Gask. He had also a natural son named Robert.

That king Robert I. was a man of unquestionable virtue and humanity, as well as unequalled in the knowledge of the military art, must be evident from many particulars already related. The only questionable part of his character is his severe punishment of a conspiracy formed against him in the year 1320; a relation of which, to avoid interrupting our detail of more important matters, we have deferred till now. The chief of the conspirators were William de Soulis, whose ancestor had been a candidate for the crown of Scotland; the countess of Strathern, and some other persons of high rank. The countess discovered the plot; after which Soulis confessed the whole, and was punished with perpetual imprisonment; as well as the countess, notwithstanding her having made the discovery. Gilbert de Malyerb and John de Logie, both knights, and Richard Brown an esquire, were put to death as traitors: but the person most lamented was Sir David de Brechin, for his bravery styled *the flower of chivalry*. He was nephew to the king, and served with great reputation against the Saracens. To him the conspirators, after having exacted an oath of secrecy, revealed their designs. He condemned their undertaking, and refused to share in it; but did not discover it, on account of the oath he had taken. Yet for this concealment he was tried as a traitor, condemned and executed, without regard to his personal merit or his relation to the king. The conspirators were tried before the parliament at Seone in 1320; and this session, in which so much blood was shed, was long remembered by the vulgar under the name of the *black parliament*. Whether there was any thing real in this conspiracy, or whether the king only made use of this pretence to rid himself of such as were obnoxious to him, cannot now be known with certainty.

After the death of Robert, the administration was assumed by Randolph, in consequence of an act passed in 1318, by which he was appointed regent in case of the king's death. In his new character he behaved himself in a most exemplary manner; and by impartially discharging the duties of his station, and rigidly administering justice, he secured the public tranquillity in the most perfect manner. A severe exercise of justice was now rendered not only necessary, but indispensable.

During a long course of war, the common people had been accustomed to plunder and bloodshed; and having now no English enemies to employ them, they robbed and murdered one another. The methods by which Randolph repressed these crimes were much the same with those which have been adopted in latter times; for he made the counties liable for the several robberies committed within their bounds. He even ordered the farmers and labourers not to leave the tools employed by them in agriculture during the night-time, that the sheriff's officers might be the more vigilant in securing them. He gave orders for severely punishing all vagabonds, and obliged them to work for their livelihood; making proclamation, that no man should be admitted into a town or borough who could not earn his bread by his labour. These regulations were attended with the most salutary effects. A fellow who had secreted his own plough-irons, pretending that they were stolen, being detected by the sheriff's officers, was instantly hanged. A certain man having killed a priest, went to Rome, and obtained absolution from the pope; after which he boldly returned to Scotland. Randolph ordered him to be tried, and, on his conviction, to be executed: "Because," said he, "although the pope may grant absolution from the spiritual consequences of sin, he cannot screen offenders from civil punishment."

King Robert, just before his death, had desired that his heart might be deposited in our Saviour's sepulchre at Jerusalem; and on this errand the great commander Douglas was employed, who set sail in June 1130 with a numerous and splendid retinue. He anchored off Sluys in Flanders, the great emporium of the low countries, where he expected to find companions in his pilgrimage; but learning that Alphonfus XII. the young king of Leon and Castile, was engaged in a war with Osmyn the Moor, he could not resist the temptation of fighting against the enemies of Christianity. He met with an honourable reception at the court of Spain, and readily obtained leave to enter into what was thought the common cause of Christianity. The Spaniards first came in sight of their enemy near Theba, a castle on the frontiers of Andalusia, towards the kingdom of Granada. The Moors were defeated; but Douglas giving way to his impetuous valour, pursued

the enemy too eagerly, and throwing among them the ^{Scotland} casket which contained the heart of his sovereign, cried out, "Now pass thou onward as thou wert wont; Douglas will follow thee or die." The fugitives rallied and surrounded Douglas; who, with a few of his followers, was killed in attempting to rescue Sir Walter St Clair of Roslin. His body was brought back to Scotland, and interred in the church of Douglas. His countrymen perpetuated his memory by bestowing upon him the epithet of *the good Sir James Douglas*. He was one of the greatest commanders of the age; and is said to have been engaged in 70 battles, 57 of which he gained, and was defeated in 13.—Of him it is reported, that meeting with an officer at the court of Alphonfus, who had his face quite disfigured with scars, the latter said to him, "It astonishes me, that you, who are said to have seen so much service, should have no marks of wounds on your face." "Thank heaven," answered Douglas, "I had always an arm to protect my face."

In 1131, Edward Baliol began to renew his pretensions to the crown of Scotland, about the same time that David II. and his consort Johanna were crowned at Scone; which ceremony was performed on the 24th of November. Some historians relate, that he was excited to this attempt by one Twynham Lowrison, a person who had been excommunicated for refusing to do penance for adultery, and afterwards was obliged to fly on account of his having way-laid the official, beat him, and extorted a sum of money from him. But however this may be, it is certain, that in this year differences began to arise with England, on the following account. It had been provided by an article of the treaty of Northampton, that "Thomas lord Wake of Ledel, Henry de Beaumont, called *earl of Buchan*, and Henry de Percy, should be restored to their estates, of which the king of Scots, by reason of the war between the two nations, had taken possession." This article had been executed with respect to Percy, but not to the other two; and though Edward had repeatedly complained of this neglect, he could not obtain any satisfaction (G).

The disinherited barons now resolved to invade Scotland, though their force consisted of no more than 3000 infantry.

(G) As this is an important period of history, we shall here transcribe the opinion of lord Hailes concerning the causes of this strange delay of executing an article seemingly of little importance where a nation was concerned. "By the treaty of Northampton," says he, "all the claims of the English barons to inheritances in Scotland were disregarded, excepting those of Henry de Percy, Thomas lord Wake of Ledel, and Henry de Beaumont. Percy procured satisfaction: but the others did not."

"Henry de Beaumont, in the reign of Edward II. had associated himself with the nobility against the D'Espenfers, and on that account had suffered imprisonment and exile. He aided queen Isabella in the invasion which proved the cause of the deposition, captivity, and death of her husband. Although, under the administration of Mortimer, he had obtained a share in the partition of the spoils of the D'Espenfers, he persisted in opposing the measures of the new favourite; and although his own interests were secured by the treaty of Northampton, he boldly exclaimed against the injustice done to the other barons by that treaty. He joined the princes of the blood-royal in their attempt to rescue the young king from the hands of Isabella and her minion, and place him in their own; and, on the failure of that ill-advised conspiracy, he again took refuge in foreign parts. It appears that lord Wake, having followed the political opinions of Henry de Beaumont, was involved in like calamities and disgrace. While the queen-dowager and Mortimer retained their influence, the claims of those two barons were altogether overlooked: But within forty-eight hours after the execution of Mortimer, a peremptory demand was made by Edward III. to have their inheritance restored."

"The demand was unexpected and alarming. Made at the very moment of the fall of Isabella and Mortimer, and

Scotland. infantry, and 400 men at arms. Edward would not permit them to enter Scotland by the usual way, as he himself did not yet choose openly to take part in their quarrel. For this reason they were obliged to take shipping, and landed at a place called *Ravenbare, Ravenspur, or Ravensburgh*, at the mouth of the Humber (H). Randolph, having intelligence of the English preparations, had marched an army to the frontiers of East Lothian; but, being afterwards informed of the naval armament, he marched northwards; but died at Musselburgh, six miles east of Edinburgh, on the 20th of July 1332. With him died the glory of Scotland. The earl of Marr, a man whose only merit consisted in his being related to the royal family, was chosen to succeed him in the regency.—Edward, in the mean time, fell upon a most curious expedient to show the justice of his cause. In March 1332, he had published a prohibition for any person to infringe the treaty of Northampton. The disinherited lords had been suffered to embark, expressly for the purpose of invading Scotland, after this prohibition was published. *After they were gone*, Henry de Percy was empowered to punish those who should presume to array themselves in contempt of his prohibition; and because he understood that the Scots were arming in order to repel these invaders whom Edward had indirectly sent against them, he empowered Henry de Percy to arm against them.

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Randolph
the regent
dies.

206
Baliol lands
at King-
horn, and
defeats the
Scots.

On the 31st of July, Edward Baliol and his associates landed in the neighbourhood of Kinghorn, on the Forth; routed the earl of Fife, who opposed them; and marched next day to Dunfermline. Having then ordered his fleet to wait for him at the mouth of the Tay, he proceeded northwards, and encamped on the Miller's acre at Forteviot, with the river Earn in front. Nothing, however, could be more dangerous than his situation at present, and his destruction would have been inevitable. The earl of Marr was encamped with a nu-

merous army on the opposite bank of the river Earn, in the neighbourhood of Duplin; and another, nearly as numerous, had advanced from the south, through the Lothians and Stirlingshire, and fixed its quarters at Auchterarder, eight miles to the west of Forteviot. Historians differ as to the number of the two armies. Fordun says, that the regent had with him 30,000 men, and the earl of March as many; and that Baliol had between 500 and 600 men at arms, that is, horsemen completely armed. Hemingford reckons each of the Scots armies at 40,000, and Baliol's at 500 armed men. Knyghton says, that Baliol, when he landed in Fife, had 300 armed men, and 3000 more of different sorts; but that he had in all only 2500 men in his camp at Earn. In this desperate situation, the English general formed a design of attacking the Scots in their camp. They were directed to a ford by Andrew Murray of Tullibardine. The Scots kept no watch, but abandoned themselves to intemperance and riotous mirth; while their enemies, led by Alexander Moubay, crossed the river at midnight. They ascended a rising ground, came unperceived on the right flank of the Scottish army, and made a dreadful slaughter. At the first attack, young Randolph halted with 300 men at arms to oppose the enemy; and being seconded by Murdoch earl of Menteith, Alexander Fraser, and Robert Bruce natural son to the late king, he gave a check to the English, and maintained the combat on equal terms. But now the regent himself, along with the whole multitude, rushed forward to battle without the least order: so that while the hindmost pressed on, the foremost were thrown down, trodden upon, and suffocated. The slaughter lasted many hours, and the remains of this vast army were utterly dispersed. Many men of eminence were killed; among whom were Donald earl of Marr, author of the whole catastrophe; Thomas earl of Moray, Murdoch earl of Menteith, Robert earl of Carrick, Alex-

Scotland.
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and in behalf of men who had loudly protested against the treaty of Northampton, it indicated a total and perilous change in the system of the English.

"Randolph, of late years, had beheld extraordinary vicissitudes in England. The D'Espenfers alternately persecuted and triumphant, and at length abased in the dust: The fugitive Mortimer elevated to supreme authority, victorious over the princes of the bloody-royal, and then dragged to a gibbet. Hence it was natural for Randolph to wish, and even to look, for some new revolution, which might prove more favourable to the Scottish interests. Meanwhile, with great reason and good policy, he delayed the restitution of the inheritances claimed under the treaty of Northampton, in behalf of the avowed opposers of that treaty.

"Besides, it was necessary for Randolph to be assured that the English, while they urged the performance of one article of that treaty, did, on their part, sincerely purpose to perform its more important articles, by continuing to acknowledge the succession in the house of Bruce, and the independency of the Scottish nation.

"Of this, however, there was much reason to doubt. For the English king had taken Baliol under his protection, and had granted him a passport to come into England, with permission to reside there during a whole year, (10th October 1330). These things had no friendly or pacific appearance.

"Be this as it will, the event too fatally justified the apprehensions of Randolph; for, while Edward III. was demanding restitution of the estates reserved by the treaty of Northampton, his subjects were arming in violation of that treaty.

"It is remarkable, that, on the 24th March 1331-2, Edward appears to have known of the hostile association of the disinherited barons. His words are, '*Quia ex relatu accepimus plurimorum, quod diversi homines de regno nostro, et alii (meaning Baliol and his attendants), pacem inter nos, et Robertum de Brus, nuper Regem Scotorum, initam et confirmatam infringere machinantes, diversas congregationes hominum ad arma indies faciunt, et, per marchias regni nostri, dictam terram Scotie, ad eam modo guerrino impugnandum, ingredi intendunt;*' *Foedera*, T. iv. p. 511. And yet, on the 22d April following, he demanded restitution of the inheritance of lord Wake, one of the barons in arms;" *Foedera*, T. iv. p. 518.

(H) This place does not now exist; having been overwhelmed by the sea many centuries ago.

ed. Alexander Frazer, and Robert Bruce. The slaughter of the infantry and of the men at arms was very great; the most probable accounts make it 2000 men at arms, and upwards of 13,000 common soldiers. The loss of the English was inconsiderable.

The day after this victory, Baliol took possession of Perth; and, apprehending an attack from the earl of March, caused the ditch to be cleared, and the town to be fortified with pallisadoes. The first information which the earl received of this dreadful defeat was from a common soldier, who fled from the place mortally wounded. When this poor wretch came up, he had time to do no more than to show his wounds; after which he fell down, and expired. On his arrival at the field of battle, he found a dreadful confirmation of the intelligence given by the soldier; but instead of taking his measures with any prudence, he and his men hurried on headlong to Perth, actuated only by a blind impulse to revenge. At first they designed to assault the place; but their hearts failing them, they next determined to reduce it by famine. This, however, could not be done unless the Scots were masters at sea. One John Crab, a Flemish engineer (who had distinguished himself by destroying the famous engine called the *sow* at the siege of Berwick), had continued for many years to annoy the English on the eastern coasts. After the blockade of Perth was formed, he came with ten vessels to the mouth of the Tay, where the English fleet was; and took the ship belonging to Henry de Beaumont; but soon after all his ten vessels were burnt by the English in a general engagement. After this the blockade of Perth was raised, the earl of March disbanded his army, and Edward Baliol was crowned king of Scotland at Scone, on the 24th of September 1332.

The new monarch was no sooner put in possession of the kingdom, than he left Perth in the hands of the earl of Fife, while he himself repaired to the southern parts of the kingdom. But the party of king David was far from being extinguished. Baliol was scarce gone, when the town of Perth was surprised, and its fortifications razed, by James Frazer, Simon Frazer, and Robert Keith. The earl of Fife was made prisoner, with his family and vassals. Andrew Murray of Tullibardine, who had directed the English to a ford on the river Earn, was put to death as a traitor. Such of the Scots as still adhered to the interest of their infant prince, chose Sir Andrew Murray of Bothwell regent. He was a brave and active man, but had not as yet sufficient force to attempt any thing considerable.

In the mean time, Baliol behaved in a most scandalous manner. At Roxburgh, he made a solemn surrender of the liberties of Scotland; acknowledged Edward for his liege-lord; and, as if this had not been sufficient, he became bound to put him in possession of the town, castle, and territory of Berwick, and of other lands on the marches, extending in all to the yearly value of 2000*l*. "on account," as the instrument bears, "of the great honour and emoluments which we have procured through the *sufferance* of our lord the king, and by the powerful and acceptable aid which we have received from his good subjects." He also proffered to marry the princess Johanna, whom he considered as only betrothed to David Bruce, and to add 500*l*. to

her jointure; and this under the penalty of 10,000*l*. Scotland, to be appropriated as a portion to the young lady, or otherwise disposed of for her behoof. He further engaged to provide for the maintenance of David Bruce as the king of England should advise; and, lastly, he became bound to serve Edward in all his wars, excepting in England, Wales, and Ireland, for the space of a year together, with 200 men at arms, and all at his own charges; and he bound his successors to perform the like service with 100 men at arms. But afterwards Edward having engaged to maintain him on the throne of Scotland, Baliol bound himself to serve him in all his wars whatever.

Though the greatest part of the nation submitted to this shameful treaty, it roused the indignation of those who wished well to the liberties of their country. John, the second son of Randolph, now earl of Moray by the death of his brother; Archibald, the youngest brother of the renowned Douglas; together with Simon Frazer, assembled a body of horsemen at Moffat in Annandale; and, suddenly traversing the country, assaulted Baliol unexpectedly at Annan. His brother 211: Baliol surprised, and driven out of Scotland. Henry made a gallant resistance for some time; but was at last overpowered with numbers, and killed, together with several other persons of distinction. Baliol himself escaped almost naked, with scarce a single attendant, and fled to England. After his departure, the Scots began to make depredations on the English frontiers. Edward issued a proclamation, in which he solemnly averred, that the Scots, by their hostile depredations, had violated the peace of Northampton. Baliol, in the mean time, being joined by some English barons, returned to Scotland; took and burnt a castle where Robert de Colville commanded; and, establishing his quarters in the neighbourhood of Roxburgh, began to make preparations for besieging Berwick. Just after his arrival, Archibald Douglas, with 3000 men, invaded England by the western marches, plundered the country, and carried off much booty; in revenge for which, Sir Anthony de Lucy made an inroad into Scotland, defeated and took prisoner Sir William Douglas, celebrated in history by the appellation of *the knight of Liddesdale*, whom Edward caused to be put in irons. About the same time, Sir Andrew Murray the regent attacked Baliol, with a view to discomfit him before the reinforcements which he expected out of England could arrive. A sharp conflict ensued at Roxburgh, in which the regent, attempting to rescue a soldier, was taken prisoner: and thus Scotland was at once 212: The Scots regent defeated and taken prisoner. deprived of its two ablest commanders.

Archibald Douglas was now declared regent; and Edward prepared to invade Scotland, in order to take vengeance on its inhabitants, as he said, for the wrongs they had done, and to seek such redress as might seem good to himself. He ordered possession to be taken of the isle of Man in his own name; and soon after made it over to Sir William de Montague, who had some claim of inheritance in it. The chief design of Edward in this expedition, however, was to obtain possession of the town of Berwick, which had been already ceded to him by Baliol. This appeared to 213: Berwick the Scots a place of no less importance than it did to be besieged by Edward; and therefore they took all the precautions the English in their power to prevent the loss of it. The earl of March was appointed to command the castle, and Sir William

Scotland

William Keith the town. The Scots made an obstinate defence; yet it was evident that they must soon have yielded if they had not been relieved. At length the regent, with a numerous army, appeared in the neighbourhood. He endeavoured to convey succours into the town, or to provoke the enemies to quit the advantage of the ground, and engage in battle. But all his efforts were in vain; the English obstructed every passage, and stood on the defensive.

214
The Scots
invade
North-
umberland in
vain.

The regent then entered Northumberland, wasted the country, and even assaulted Bamborough-castle, where Philippa the young queen of England had her residence. He fondly imagined that Edward III. would have abandoned the siege of Berwick, after the example of his father, in circumstances not dissimilar. Edward nevertheless persevered in his enterprise.

During a general assault, the town was set on fire, and in a great measure consumed. The inhabitants having experienced the evils of a siege, and dreading the worse evils of a storm, implored the earl of March and Sir William Keith to seek terms of capitulation. A truce was obtained; and it was agreed, that the town and castle should be delivered up on terms fair and honourable, unless succours arrived before the hour of vespers on the 19th July.

It was specially provided, "that Berwick should be held as relieved, in case 200 men at arms, in a body, should force their passage into the town."

215
The Scots
resolve to
come to an
engage-
ment.

By the treaty, Sir William Keith was permitted to have an interview with the regent. He found him with his army in Northumberland; urged the necessity of his return; and showed him, that Berwick, if not instantly relieved, was lost for ever. Persuaded by his importunities, the regent resolved to combat the English, and either to save Berwick or lose the kingdom.

On the afternoon of the 19th of July, the regent prepared for battle. He divided his army into four bodies. The first was led by John earl of Moray, the son of Randolph; but as he was young and inexperienced in war, James and Simon Fraser, soldiers of approved reputation, were joined with him in the command. The second body was led by the steward of Scotland, a youth of 16, under the inspection of his uncle Sir James Stewart of Rosyth. The third body was led by the regent himself, having with him the earl of Carrick and other barons of eminence. The fourth body, or reserve, appears to have been led by Hugh earl of Ross.

The numbers of the Scottish army on that day are variously reported by historians. The continuator of Hemingsford, an author of that age, and Knyghton, who lived in the succeeding age, ascertain their numbers with more precision than is generally required in historical facts.

The continuator of Hemingsford minutely records the numbers and arrangement of the Scottish army. He says, that, besides earls and other lords or great barons, there were 55 knights, 1100 men at arms, and

13,500 of the commons lightly armed, amounting in all to 14,655.

With him Knyghton appears to concur, when his narrative is cleared from the errors of ignorant or careless transcribers.

It is probable, however, that the servants who tended the horses of persons of distinction and of the men at arms, and the useless followers of the camp, were more numerous than the actual combatants.

The English were advantageously posted on a rising ground at Halydon, with a marshy hollow in their front. Of their particular disposition we are not informed, further than that Baliol had the command of one of the wings.

It had been provided by the treaty of capitulation, "That Berwick should be considered as relieved, in case 200 men at arms forced their passage into the town." This the Scottish men at arms attempted; but Edward, aware of their purpose, opposed them in person, and repulsed them with great slaughter. The Scottish army rushed on to a general attack; but they had to descend into the marshy hollow before mounting the eminences of Halydon. After having struggled with the difficulties of the ground, and after having been incessantly galled by the English archers, they reached the enemy. Although fatigued and disordered in their ranks, they fought as it became men who had conquered under the banners of Robert Bruce. The English, with equal valour, had great advantages of situation, and were better disciplined than their antagonists. The earl of Ross led the reserve to attack in flank that wing where Baliol commanded; but he was repulsed and slain. There fell with him Kenneth earl of Sutherland, and Murdoch earl of Menteith.

In the other parts of the field, the events were equally disastrous. The regent received a mortal wound, and the Scots everywhere gave way. In the field, and during a pursuit for many miles, the number of slain and prisoners was so great, that few of the Scottish army escaped.

Besides the earls of Ross, Sutherland, and Menteith, there were among the slain Malcolm earl of Lennox, an aged baron; he had been one of the foremost to repair to the standard of Robert Bruce, and his last exertions were for his country: Alexander Bruce earl of Carrick, who atoned for the short defection from the family of his benefactor; John Campbell earl of Athole, nephew of the late king; James Fraser, and Simon Fraser; John de Graham, Alexander de Lindesay, Alan Stewart, and many other persons of eminent rank.

The Steward had two uncles, John and James. John was killed, and James mortally wounded and made prisoner (1).

The regent, mortally wounded, and abandoned on the field of battle, only lived to see his army defeated and himself a prisoner.

This victory was obtained with very inconsiderable loss.

(1) Fordun, l. xiii. c. 28. relates, that Sir James Stewart was slain; the English historians, that he was mortally wounded and made prisoner. It may be remarked, that at Halydon two Stewarts fought under the banner of their chiefs; the one Alan of Dreghorn, the paternal ancestor of Charles I. and the other James of Rosyth, the paternal ancestor of Oliver Cromwell.

land. loss. It is related by the English historians, that, on the side of their countrymen, there were killed one knight, one esquire, and 12 foot-soldiers. Nor will this appear altogether incredible, when we remember, that the English ranks remained unbroken, and that their archers, at a secure distance, incessantly annoyed the Scottish infantry.

According to capitulation, the town and castle of Berwick surrendered. The English king took twelve hostages, for securing the fidelity of the citizens of Berwick.

Thus was the whole of Scotland reduced under the subjection of Baliol, excepting a few fortresses; so that it became necessary to provide for the safety of the young king and queen. Accordingly, they were conveyed to France, where they were honourably entertained. Meanwhile, Baliol employed himself in making new concessions to his liege-lord Edward; and in 1334 the work of submission was completed by a solemn instrument drawn up by Baliol, in which he surrendered great part of the Scottish dominions, too be for ever annexed to the crown of England. In this instrument Baliol said, that "he had formerly become bound to make a grant to Edward of lands on the marches, to the amount of *two thousand-pound lands*; that the Scottish parliament had ratified his obligation; and that he had accordingly surrendered Berwick and its territory; and now, for completely discharging his obligation, he made an absolute surrender to the English crown of the forests of Jedburgh, Selkirk, and Ettrick; of the counties of Roxburgh, Peebles, and Dumfries; together with the county of Edinburgh, and the constabularies of Linlithgow and Haddington." This extraordinary surrender was made with so much precipitation, that Baliol forgot to except his own private estate out of it. This, however, was generously reitected to him by Edward; who proclaimed, that, "having already received satisfaction in full, he had too much reverence for God, justice, and good faith to man, to allow the cession to be prejudicial to the private rights of the king of Scots." At the same time, Baliol presented himself before his liege-lord; did homage, and swore fealty, "for the whole kingdom of Scotland and the isles adjacent."

A quarrel now arose among the disinherited lords, to whom this revolution had been owing, which produced the worst consequences to the interest of Baliol. The brother of Alexander de Moubray died, leaving daughters, but no issue-male. Moubray having claimed a preference to the daughters of his brother, Baliol countenanced his suit, and, as it appears, put him in possession of the inheritance. Henry de Beaumont earl of Buchan, and David de Strathbolgie or Hastings, earl of Athol, espoused the cause of the heirs-general; but perceiving that their solicitations were not heard, they left the court in disgust, and retired to their castles about the end of August 1334. Baliol soon perceived his error in offending these two powerful lords; and in order to regain their favour, dismissed Moubray, and conferred on David de Strathbolgie the whole estates of the young Steward of Scotland. Thus he alienated the affections of Moubray, and added to the power of the earl of Athol, who was by far too powerful before.

About this time Sir Andrew Murray of Bothwell,
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having regained his freedom, began to assemble the friends of liberty, and was immediately joined by Moubray. In a moment every thing was in confusion. Geoffrey de Moubray, governor of Roxburgh, revolted; Henry de Beaumont was besieged in his castle of Dundarg by Murray and Moubray, and forced to surrender, but obtained liberty to depart into England. Richard Talbot, endeavouring to pass into England with a body of troops, was defeated and taken prisoner by Sir William Keith of Galston. The Steward of Scotland, who had lain concealed in the isle of Bute ever since the battle of Halidon, now passed over to the castle of Dunbarton, which was one of the few forts remaining to king David. With the assistance of Dougal Campbell of Lochow, he made himself master of the castle of Dunoon in Cowal. His tenants of the isle of Bute attacked and slew Alan de Lile the governor, and presented his head to their master. John the son of Gilbert, governor of the castle of Bute, was made prisoner in the action. He ordered the garrison to surrender, and attached himself to the Scottish interest. Encouraged by these successes, the Steward entered his ancient inheritance of Renfrew, and compelled the inhabitants to acknowledge the sovereignty of David. Godfrey de Ross, the governor of Ayrshire, submitted to the Steward. The earl of Moray returned from France, whither he had fled after the battle of Halidon, and was acknowledged regent along with the Steward. The earl, having raised a body of troops, marched against the earl of Athol, compelled him to retire into Lochaber, and at last to surrender; after which he embraced the party of the conquerors. Baliol was now obliged to retire again into England, in order to solicit assistance from Edward; and this was readily granted. Edward himself took the field at a very unfavourable season for military enterprises. His army was divided into two parts. With the one Edward wasted Lothian, while Baliol did the like in Anandale with the other; and, in the mean time, Patrick earl of March, notwithstanding the unfavourable posture of affairs, renounced the allegiance he had sworn to England. His motive for this was, that though the kings of England had maintained him in an independence dangerous to Scotland, he was assured that they would never permit him to become formidable in a country which they themselves possessed.

The year 1335 is remarkable for the siege of Lochleven castle by the English, under John de Strivelin. This fort was built on a small island, and very difficult of access. The English commander erected a fort in the cemetery of Kinross; and at the lower end of the lake, from whence runs the stream called the *Water of Leven*, he raised a strong and lofty bulwark, by means of which he hoped to lay the island under water, and oblige the garrison to surrender. But four of the Scots soldiers, having found means to approach the bulwark undiscovered, pierced it so dexterously, that the waters, rushing out with a prodigious force, overflowed part of the English camp; and the garrison, falling out during the confusion occasioned by this unexpected inundation, stormed and plundered the fort at Kinross. At this time the English commander, with many of his soldiers, happened to be absent at Dunfermline, celebrating the festival of St Margaret. On his return, he swore that he would never desist till

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he had taken the place, and put the garrison to the sword; however, his utmost efforts were at last baffled, and he was obliged, notwithstanding his oath, to desist.

224
Count Guy
of Namur
defeated
and taken
prisoner.

In the mean time, the regents assembled a parliament at Dairsy, near Cupar in Fife; but no plan of defence could be fallen upon, by reason of the animosities and factions which prevailed among the barons. Through the mediation of the French, some terms of peace were proposed; but being rejected by the English, Edward again invaded Scotland, cruelly ravaging the country with one army, while Baliol and the earl of Warrene did the same with another. Soon after this invasion, count Guy of Namur landed at Berwick with a considerable number of men-at-arms in the service of the English. He advanced to the neighbourhood of Edinburgh; but was defeated and taken prisoner by the earls of March and Moray, and Sir Alexander Ramsay. In this engagement, one Richard Shaw, a Scottish esquire, was singled out by a combatant in the army of count Guy, and both pierced each other with their spears; the stranger being stripped, was discovered to be a woman. The earl of Moray treated Guy with the greatest respect, not only allowing him and the remainder of his troops to depart from Scotland without molestation, but even attending him to the borders, accompanied by William Douglas and his brother James. On his return, William de Prefsen, warden of the castle and forest of Jedburgh, attacked and defeated his party; James Douglas was killed, the earl himself taken prisoner, and carried into England.

225
The Scots
regent
taken pri-
soner, in
consequence
of which a
shameful
treaty is
concluded
with Eng-
land.

Thus was the Scottish nation once more reduced to the brink of ruin. Alexander de Mowbray, Geoffrey de Mowbray, and some others, pretending powers from "the earl of Athol and Robert the Steward of Scotland," concluded a treaty with Edward at Perth; the substance of which was, that all the Scots should receive pardon, and have their fees, lands, and offices restored, excepting those who by *common assent* in parliament should be excluded. The liberties of the church and the ancient laws and usages of Scotland were to remain in full force. All offices were to be filled with Scotsmen, excepting that the king should appoint whom he pleased within his regalities.

226
The earl of
Athol de-
feated and
killed.

The earl of Athol now began to persecute with the utmost fury those who wished well to the cause of Scotland. With 3000 men he besieged the castle of Kildrommey, which had hitherto been the great refuge of king David's party. Sir Andrew Murray of Bothwell resolved at all events to attempt the rescue of his wife and family, who were shut up in this castle. With 1100 men he surprised Athol in the forest of Kilblain. The earl's men, seized with a panic, fled and dispersed themselves; on which their commander, refusing to accept of quarter, was killed. Sir Andrew Murray then assembled a parliament at Dunfermline, where he was immediately appointed regent.

227
Edward
again in-
vades Scot-
land.

In 1336, the king of England perceiving that the Scots were taken under the patronage of France, resolved to invade their country, and crush them at once before they could have any assistance from their new allies. In this expedition he penetrated as far as Inverness; but the Scots, commanded by Sir Andrew Murray, avoided coming to a general action; so that Edward could not effect any thing of consequence.

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The inhabitants of Aberdeen attacked one Thomas Roshome, who had landed at Dunottar. They were defeated; but Roshome fell in the action. Edward chastised the vanquished severely for their temerity, and laid the town in ashes. He then began to repair the castles whose fortifications had been demolished by king Robert. He put in a state of defence the castles of Dunottar, Kinclavin, Lawriston, Stirling, Bothwell, Edinburgh, and Roxburgh; greatly augmented the fortifications of Perth, and left a considerable body of troops in the place. The Scots began to reduce these castles as soon as Edward was departed; and in 1337, under Sir Andrew Murray, invaded Cumberland. No great exploits, however, were now performed on either side. Edward being employed in preparations for invading France, had little leisure to attend to the affairs of Scotland; and the Scots, divided among themselves, and destitute of those leaders under whom they had acquired so much glory, could not now annoy their enemies as formerly. The most remarkable transaction was the siege of the castle of Dunbar, belonging to the earl of March. The English commander was the earl of Salisbury. The earl of March was absent; but his wife, the daughter of Randolph, from her complexion commonly called *Black Agnes*, undertook to defend it in her husband's absence. The English again employed that huge machine called a *sow*, formerly mentioned in our account of the siege of Berwick: it met with the same fate now as at that time; an huge stone, let fall upon it from the top of the walls, crushed it to pieces. The English, baffled in every attack, turned the siege into a blockade; but Sir Alexander Ramsay having found means to enter it with 40 resolute men, the garrison made a sally, and cut in pieces the advanced guard of the enemy. The English, disheartened by so many misfortunes, abandoned the enterprise.

228
Dunbar
castle un-
successfully
besieged
the Eng-
lish.

In 1338, Sir Andrew Murray the regent died, and was succeeded in his office by Robert the Steward of Scotland. In 1339 he reduced the town of Perth and the castle of Stirling; and gained over to the Scottish interest William Bullock, governor of the castle of Coupar: after which, having expelled the enemy from every post to the northward of the Forth, he employed himself in settling the affairs of the nation as well as he could.

229
Exploits
of Robert
the
Steward.

In 1341, the castle of Edinburgh was surprised by a device of Sir William Bullock. According to his appointment, one Walter Currie of Dundee privately received into his ship the knight of Liddesdale, with William Fraser, Joachim of Kinbuck, and 200 resolute men. Currie cast anchor in Leith road, pretending to be an English shipmaster, who had a cargo of wine and provisions, with which he proposed to furnish the commander of the castle. His barrels and hampers were brought to the castle-gate, and suddenly thrown down in such a manner as to obstruct the shutting of it. Currie and his men then slew the centinels; and the knight of Liddesdale, with a party who lurked in the neighbourhood, rushed in, overpowered the garrison, and made themselves masters of the place.—On the 4th of March this year, the king and queen arrived from France, and landed at Inverberrie in Kincardineshire.

230
Edinburgh
castle sur-
prised by
Sir Wil-
liam
Bullock.

In 1342, Sir Alexander Ramsay took the strong fortresses of Roxburgh; for which important service the king bestowed on him the charge of sheriff of Teviotdale, at that

231
King Da-
vid ar-
rives in
Scotland.

that time held by William Douglas knight of Liddesdale. The king's liberality proved fatal to Ramsay: for from that time Douglas became his implacable and inveterate enemy; and having, after a pretended reconciliation, unexpectedly surprised him with three of his friends, he put them instantly to death, carrying off Ramsay himself to his castle of the Hermitage, where he caused him to be starved to death in a most barbarous manner. The unhappy man was confined in a room, over which was an heap of wheat; a few grains of which were let fall every day through a hole, not as many as would support life, but as would protract it for a time, and make him longer sensible of the agonies of hunger; and in this miserable situation he survived 17 days. About the same time Sir William Bullock was put to death by Douglas in a similar manner; nor was King David at that time in a capacity to punish such atrocious cruelties committed by so powerful a subject.

In the mean time, David having raised a powerful army, prepared to take a severe revenge of the English, from whom he had suffered so much. Edward was at that time in France, but commanded Baliol to raise all the militia beyond the Trent: which order, however, produced but little effect; so much was this mean-spirited prince despised by the English. David invaded Northumberland without opposition, and ravaged the country; but was obliged to raise the siege of Newcastle, which was commanded by Sir John Nevil, an excellent officer. David, exasperated at this repulse, entered the bishopric of Durham, which he ravaged in the most cruel manner. However, on the approach of Edward with a powerful army, the Scots thought proper to retire; and a two years truce was agreed upon.

This pacification was but short-lived. In 1345 the Scots again prepared to invade England, while Edward took all necessary measures for opposing them: however, this year the Scots were successful, ravaging Westmoreland, and burning several towns. The year ended with a new truce between the two nations; and hostilities were not renewed till 1346, when David entered England with an army of 50,000 men. His first exploit was the taking of the fortress of Liddel, and massacring all whom he found in it. The commander, Sir Walter Selby, capitulated with a Scots knight for his life; but the bargain being disapproved of by David, he ordered two of Selby's sons to be strangled in his presence, and then the father's head to be cut off. From thence the Scots marched to Lancroft, which they plundered; then passing into Northumberland, they pillaged the priory of Hexham, but spared the town; that it might serve as a magazine. Three other towns, Corbridge, Durham, and Darlington, were spared for the same reason. In his march to Durham, it is said that he would have made the county a desert, had not some of the monks paid him a contribution of a thousand pounds to spare their estates: however, according to Knyghton, every Englishman who fell into David's hands was put to death, unless he could redeem his life by paying threepence.

To put a stop to the cruelties of this barbarous invader, the queen of England, in her husband's absence, assembled a powerful army, which was divided into four bodies; the first commanded by Lord Henry Percy; the second by the archbishop of York; the

third by the bishop of Lincoln, the lord Mowbray, and Sir Thomas Rokeby; and the fourth and principal division was headed by Edward Baliol.—The king of Scotland headed a chosen battalion, composed of the flower of his nobility, and the auxiliaries with which he had been supplied by France. The high steward of Scotland headed the second line; and the third was commanded by the earls of Moray and Douglas. While the English were approaching, Lord Douglas and Sir David Graham skirmished with them, but were defeated with the loss of 500 of their men; which seemed an omen of the disaster that was about to ensue. The general engagement began between the archers on both sides; but the English being much superior in the use of the bow, the steward of Scotland advanced to the relief of his countrymen. The English archers, unable to bear his attack, fell back upon Lord Henry Percy's division, which was thus put in confusion, and would have been totally defeated, had not Baliol advanced to their relief with a body of 4000 horse. The steward was then obliged to retire; by which means the flank of that division commanded by David, and which was then engaged with another line of the English, was left exposed to an attack. Baliol perceived the advantage; and, without pursuing the steward, attacked the king's division, which was immediately cut in pieces or dispersed. David was left with about 80 noblemen and gentlemen, but still maintained the fight with obstinacy; nor would he yield even when wounded in the head with an arrow, expecting every moment to be relieved by the steward and that line of his army which was still entire under the Lords Moray and Douglas. At last finding himself totally overpowered, he attempted to retreat, but was overtaken by a party under one John Copeland. This captain, endeavouring to seize the king, had two of his teeth struck out by a blow of his gauntlet; but at last, finding it in vain to resist, the king was obliged to give up his sword and surrender himself a prisoner.—After he was taken, Baliol attacked and totally routed that division of the Scottish army which had hitherto remained entire under the Lords Moray and Douglas. In this battle the Scots lost a great number of their nobility, and 15,000 common soldiers. Many persons of the first distinction were also taken along with the king; and had it not been that the escape of the Scots was favoured by the avarice of the English soldiers, who neglected the pursuit in order to plunder, scarce a single Scotsman would have returned.

King David, after this unfortunate battle, was carried to the castle of Bamborough, where he was kept with so much privacy, that for some time it was not known where he was, or that he had been taken prisoner. As soon as the truth was known, the queen of England demanded the royal prisoner from Copeland; but the latter positively refused to part with him even to the queen, unless she could produce an order to that purpose under Edward's hand and seal. This resolute behaviour was resented by the queen, and a complaint made to the king; in consequence of which Copeland was summoned to appear before Edward, after having resigned David to the custody of Lord Nevil. The English monarch, at that time in France, approved of all that he had done, rewarded him with 500 l. a year, and sent him back to England with the honour of

Scotland. knighthood. David was then escorted by Copeland, attended, it is said, by 20,000 men, from the castle of Ogle in Northumberland, till the Lord Nevil, by indenture, delivered him into the hands of Sir Thomas Rokeby sheriff of Yorkshire. In the same pompous manner he was conducted all the way to London, which he entered on a black-courser. He was received in the capital with the greatest solemnity by the lord-mayor and other magistrates, the city-companies under arms lining all the streets through which he passed, the houses loaded with spectators, who expressed a generous concern for his captivity. Being arrived at the Tower, he was delivered, by indenture likewise, to the custody of the constable, the Lord John Darcy, on the 2d of January 1347.

239
Baliol makes another attempt on the crown of Scotland.

240
The Scots recover the greatest part of their country.

241
Scotland infested with a dreadful plague.

242
Terms proposed for release of the Scottish monarch.

Baliol now, encouraged by the misfortune of his rival, made an effort once more to establish himself on the throne of Scotland; and before the end of the year reduced the castles of Hermitage and Roxburgh, the forest of Ettrick, the Merse, with the counties of Annandale, Teviotdale, and Tweeddale. The Scots continued faithful to the cause of their king, notwithstanding his misfortune, and chose the Steward for the guardian of the kingdom. He behaved with a prudence equal to the high station he filled: nevertheless the progress of Baliol was so rapid, that it is scarcely probable he could have maintained his ground, had not Edward again consented to a truce; which, however, seems to have been ill observed on the part of the Scots. In fact, though both Scots and English historians are silent as to particulars, we find, that about the end of the year 1348, all Scotland was recovered out of the hands of the English; excepting Berwick, Roxburgh, Hermitage, and Lanric, which was part of Baliol's hereditary estate, and defended by him with an army. The Scots historians inform us, that the English, in revenge for the damages done to their country by the breach of the peace, proclaimed a tournament and other military exercises at Berwick, to which they invited the Scots; but in their way thither the latter fell into an ambuscade, and were all cut in pieces.

The years 1349 and 1350 were remarkable only for a dreadful plague which invaded Scotland, after having ravaged the continent of Europe. According to Fordun, one-third of the people of Scotland perished at this time. The patient's flesh swelled exceedingly, and he died in two days illness; but the mortality chiefly affected the middling and lower ranks of people. The same dreadful calamity continued throughout the years 1351 and 1352; occasioning a cessation of arms not only in Scotland, but throughout all Europe.

All this time King David remained a prisoner in England; for though several treaties had been proposed, they had hitherto come to nothing, because the English monarch insisted upon being indemnified for the ravages the Scots had committed in his territories. At last it was agreed, that the king of Scotland should be immediately set at liberty, on paying 90,000 marks for his ransom, by equal proportions, within the space of nine years: That 10,000 marks, being the first proportion, should be paid at the feast of Candlemas next to come, the second at Candlemas 1357, and so on till complete payment should be made of the whole: That, during the said space of nine years, there should be a truce between the two kingdoms: That 20 Scots gentlemen,

of the best families in the kingdom, should remain in England as hostages and sureties for the said sum; and that, if any part thereof was not paid at the precise time appointed, then David should remain a prisoner in England till it was paid; or, if he was detained by any just cause, that the lord high steward, the Lord Douglas, John of the Isles, and others of the highest rank, should come and supply his place.

These terms were rejected by the Scots nobility; and, in 1355, war was recommenced with England, at the instigation of France, who sent 40,000 crowns to Scotland as a supply for defraying the expences.

With this sum the guardian, having raised an army, once more took the field; but not before the English had destroyed the Lothians and Dougalsdale. A battle was fought on Nisbit-moor: in which the English being drawn into an ambuscade, were totally defeated. The next attempt of the Scots was against the town of Berwick, which they designed to surprise by an escalade. They met, however, with such a vigorous resistance, that many persons of distinction were killed. However, the attack proved successful; but the acquisition was of no great importance, as the castle still held out. Edward, in the mean time, hearing of the loss of the town, hurried back from France to London. Here he staid but three days, and marched northward to raise the siege. He reached Durham on the 23d of December 1355, where he appointed all his military tenants to meet him on the 1st of January 1356. On the 14th

of the same month he arrived before Berwick, which was instantly retaken; but the Scots were allowed to depart for their own country. The reduction of this place produced an extraordinary effect: for Baliol now perceiving that Edward meant not to establish him on the throne of Scotland, but to retain in his own possession as many places of that country as he could, came at last to the resolution of giving up to the king of England the whole of Scotland. This indeed was no more than a form, because at that time he was not possessed of the kingdom. However, the ceremony was performed at Roxburgh; and Baliol presented his crown and some earth and stones by way of investiture. Baliol in return was to have a revenue of 2000 pounds a year; and as Edward was at the head of an excellent army, he had little doubt of being able to force the Scots to submit.

The affairs of Scotland were now in a very critical situation; and it was necessary to gain time. For this reason Edward was amused with a negotiation; and to this he the more willingly listened, as he was at that time waiting for his fleet, from which he had great expectations. A little time, however, discovered the deceit. The Scots plainly told Edward, that they would die rather than submit to his demands; and he, in return, threatened a most dreadful revenge. His fleet in the mean time arrived in the Frith of Forth; the mariners destroyed and pillaged all that was within their reach, without sparing even the sacred edifices, carrying off the statues of the blessed virgin, loading the monks with chains, and committing every thing in those days called impiety and sacrilege. Edward had by this time marched as far as Haddington, but was obliged to receive provisions all the way from his fleet; for the Scots had desolated the country through which he passed. During his march his army was harassed, and his

243
Rejected the nobility, and war recommenced.

244
Berwick taken by the Scots.

245
Retaken by Edward.

246
Baliol resigns the kingdom to Edward.

247
Who makes a furious invasion.

and his foragers cut off, so that he was reduced to distress; and at last his fleet being totally destroyed by a storm, he was obliged to return to England without accomplishing any thing.

In the mean time the prince of Wales, who had been left by his father to carry on the war in France, defeated and took prisoner John king of France at the battle of Poitiers. In this battle were 3000 Scots, who had gone over as auxiliaries to the French monarch, and who suffered extremely. However, the success of Edward, instead of rendering him haughty, seemed to have a contrary effect; and, by the mediation of Pope Innocent, a truce for two years was concluded with France, in which the Scots were comprehended. During this interval, the ransom of the king of Scots was settled at 100,000 marks to be paid in ten years; for which 20 hostages were to be given as formerly. In consequence of this treaty, David at last obtained his liberty in 1358; and Edward laid aside all hopes of ever subduing Scotland. As for Baliol, he was now sunk in oblivion; and it is not known what became of him, or when he died.

David, though now restored to liberty, found himself greatly embarrassed with the payment of such a large sum as had been stipulated for his ransom; the kingdom of Scotland being then in a most miserable and exhausted situation. After sending his queen, and going into England himself, he could obtain no greater favour than a respite of a few months for the payment of the second moiety; so that he was at last constrained to ask assistance from France. This could scarcely be expected in the distressed situation of that kingdom; however, it

was at last agreed, that 50,000 marks should be paid to Scotland, in case the Scots would consent to renew the war the following year. Neither party, however, kept their word; and David, being still greatly distressed about the remainder of his ransom, at last entered into a very extraordinary negotiation with Edward, by which he consented that the king of England should be his successor to the throne of Scotland. But this negotiation was defeated through the invincible hatred which the Scots bore to an English governor. David then, being entirely unable to discharge the remainder of his ransom, was obliged to enter into a new treaty, by which the kingdom of Scotland became indebted to Edward the sum of 100,000 pounds Sterling, to be paid by equal proportions within the space of 25 years, during which there should be a truce between the two nations.

From this time we meet with little more of any moment in the reign of King David. After the death of his Queen Johanna, the sister of Edward, he married a Scots woman, of mean birth, named Margaret Logie; but by neither of his wives had he any children. Queen Margaret he divorced, on what pretence is not known; however, she left the kingdom, and complained personally to the pope, who treated her as David's lawful wife, and enjoined her husband to receive her as such under the most severe penalties. What effect these threats had on the king is not known; but it is certain that Margaret never returned to Scotland; and, on the 22d of February 1371, David himself died, leaving the kingdom to his nephew Robert Stewart, the first of that family who sat on the throne of Scotland (κ).

Some

Scotland.

251
Enters into
a new
treaty with
Edward.

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He dies,
and is suc-
ceeded by
Robert
Stewart.

(κ) Concerning the origin of the Stewart family, we have the following account by the Scots historians. Fleance, the son of the celebrated Banquo, after his father's murder by Macbeth, fled into Wales, where he had a son named *Walter*, by a princess of that country. After the restoration of Malcolm Canmore, this Walter returned to Scotland, where he was promoted to the high stewardship, a dignity held by service, and which intitled the possessor to all the privileges of a baron. Walter was now distinguished, from this office, by the title of *Walter the Stewart*, which descended to his posterity; and *Steward*, afterwards *Stewart*, or *Stuart*, became their surname.

On this subject Lord Hailes has the following remarks. "Our historians have recorded the achievements of Walter the Stewart of Scotland in the reign of Malcolm III. He is said to have been the father of Alan, and the grandfather of that Walter who was indeed Stewart of Scotland in the reign of David I. and Malcolm IV. It may perhaps be ascribed to strange prejudices, or to a spirit of scepticism, when I declare, that hitherto I have seen no evidence that such a person as Walter Stewart of Scotland, in the reign of Malcolm III. did ever exist.

"We are gravely told, 'That Walter the son of Fleance, the son of Banquo, Thane of Lochaber, having killed a man at the court of Griffith, prince of Wales, sought refuge with Edward the Confessor; and having killed another man at Edward's court, sought refuge with Alan the Red, earl of Brittany: That, on the Norman invasion, he came to England with the earl of Brittany, and signalized himself at the battle of Hastings in 1066: That the earl of Brittany, by his first wife Emma, daughter of Siward earl of Northumberland, had an only child Christina; and that he bestowed her in marriage on the young hero.' This is the story which, after various improvements since the days of Boece, has had the good fortune to obtain credit.

"That Walter, before he had well attained to the age of manhood, should have slain two men in private quarrels, is a circumstance improbable, yet possible; and therefore I object not to it. But his alliance with the earl of Brittany cannot be so easily admitted.

"Alan, surnamed *le Roux*, a younger son of Eudo earl of Brittany, was one of the gallant adventurers who came over with William the Conqueror; he had neither territories nor court. The historians of Brittany positively assert that he had no children. Besides, it is hard to say by what accident Alan *le Roux* should have become acquainted with Emma the daughter of Siward earl of Northumberland! I suppose that our historians invented this alliance, in order to strengthen the connection between Walter the Stewart and Malcolm III.

"According

Scotland.

Some authors tell us, that at the accession of Robert II. his title was disputed by William earl of Douglas. If any such claim was preferred, an assembly of the States set it aside, and it was resolved that Robert should be crowned at Seone; and to take away for the future all disputes concerning the succession, a particular act was framed, by which the kingdom was secured to Robert and his heirs.

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Treaty with
France.

The new king being thus established on the throne, endeavoured to renew the war with the English, in order to recover from them the town of Berwick, and some other places on the borders. In this, however, he failed; and as 56,000 pounds of David's ransom still remained unpaid, Robert bound himself to discharge it at the rate of 4000 marks every midsummer. He then proposed an alliance with France; but the terms demanded by that kingdom being, that Scotland should be obliged to make war with England whenever France should require it, Robert could not by any means be induced to consent to such a requisition, which would have obliged him to break through the most solemn treaties, whenever the king of France should think proper to break with England. A new treaty,

therefore, was entered into, by which it was provided, that neither Scotland nor France should be obliged to make war with England; and by another clause, that the dispensation or authority even of the pope himself should never free the kings or kingdoms of France and Scotland from the obligations they lay under to assist one another, as often as required, in opposition to the kingdom of England. In case of a competition for the crown of Scotland, the king of France and his heirs were to take care that no English influence was used; but that the matter being by the greatest and best part of the nation decided conformably to the laws and establishments of Scotland, he should with all his power defend and assist the person so established. Lastly, it was agreed that no Frenchman should ever henceforth serve for wages, or otherwise, against Scotland, nor any Scotsman against France.

This last article occasioned a recall of all the Scots from the English armies, which Edward looked upon to be a prelude to an invasion. He accordingly issued writs for assembling all the militia in the north of England. At this time an invincible hatred subsisted between the neighbouring people of both nations, which extended

“According to one account, the genealogies of their families stand thus:
Siward earl of Northumberland*.

Emma = Alan earl of Brittany. Another daughter = Duncan king of Scots.

Christina = Walter the Stewart. Malcolm III.

“Thus Walter the Stewart and Malcolm III. were cousins-german.

“According to another account, the genealogy of their families stands thus:

Siward Earl of Northumberland. His sister = wife of Duncan.

Emma = Alan Earl of Brittany. Malcolm III.

Christina = Walter the Stewart.

“Thus the mother of Walter the Stewart and Malcolm III. were cousins-german.

“It is said, ‘That Walter the Stewart had a son, Alan, also Stewart of Scotland.’ The evidence of this is to be found in a charter granted by Earl Gospatrick, and in another charter granted by his son Waldeve Earl of March, at Dunbar. In them Alden, or Aldan Dapifer, is mentioned as a witness; that is, say our antiquaries, *Allan, the steward of Scotland.*

“This is the fundamental proposition on which the genealogy of the house of Stuart, as it is commonly understood, may be said to rest. It will be remarked, that this hypothesis takes it for granted, that *Alden* or *Aldan*, and *Alan*, are the same; upon what authority I know not. The Alden mentioned in the two charters seems to have been the steward of Earl Gospatrick, and of Earl Waldeve, not the steward of Scotland.

To the charter by Earl Gospatrick, there are eight witnesses: * Andrew the arch-deacon; Adam his brother; Nigel the chaplain; Ketel the son of Dolphin; Ernald; *Alden the Stewart* (Dapifer); Adam the son of Alden; Adam the son of Gospatrick. Is it possible for credulity itself to believe, that the *Alden* placed so low in such company, was the *high steward of Scotland*, a man at least as honourable as Gospatrick himself? I can have no doubt, that the witnesses to this charter were the dependents or household-servants of Earl Gospatrick; and that if we interpret *Nigelus Copellanus* to be *Nigel the earl's chaplain*, we must interpret *Aldemus Dapifer* to be *Alden the earl's steward.*

“To the charter granted by Earl Waldeve, there are nine witnesses. *Alden Dapifer* is the seventh in order. There are only three among them who seem to have been landed men: ‘Elias de Hadeftandena (probably Hassenden),

* There was a certain princess of Denmark who brought forth a son to a bear. This son was called *Bern*, and, natural enough like, had ears like a bear. He was the father of Siward earl of Northumberland. *Brompton*, p. 915. ap. Twifden.

extended not only through the lower ranks, but had pervaded the higher classes also. The inhabitants of the borders, indeed, paid very little regard to the orders of their respective sovereigns; so that daily hostilities were committed by them upon each other when there was peace between the sovereigns. The inhabitants of these countries had established with one another certain conventions, which have since been collected, and go by the name of the *Border-laws*. The families of Douglas and Percy, whose estates lay contiguous to one another, were at perpetual variance. It had been common for the borderers of both kingdoms, during a truce, to frequent each others fairs; and a servant of the earl of March had been killed in a fray at that of Roxburgh, which was still in the hands of the English. Justice for this murder was demanded from lord Percy; but he slighted the complaint. On this the earl of March, with his brother the earl of Moray, assembling their followers, entered the next fair that was held in Roxburgh, plundered and burnt the town, and killed all the English who fell into their hands. The English borderers were ordered to lay waste the lands of the earl of March; but, in their way thither, destroyed the

estate of Sir John Gordon, a man of great property in the south of Scotland. Sir John in his turn invaded England, from whence he drove off a large booty in cattle, and a number of prisoners. In his retreat he was attacked by a body of fresh troops under Sir John Lisburn, at a place called *Caram*. An obstinate encounter followed. The Scots were five times repulsed; but at last they renewed the charge with such fury, that they made Lisburn, his brother, and several other persons of distinction, prisoners, together with all their surviving soldiers. On this lord Percy with 7000 men encamped at Duns, in the south of Scotland; but was obliged to retire, probably for want of subsistence for his army. In the mean time, Musgrave, the governor of Berwick, who had been ordered to join Percy with a detachment from the garrison, was on his march intercepted, defeated, and taken prisoner by Sir John Gordon; after which the border war became general on both sides. The issue of these disturbances is but little known; however, in 1377, we find them raging with more violence than ever. The fair of Roxburgh was once more the scene of action, and the town was again burnt down by the Scots. Lord Percy, who was now

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earl

Haffenden), William de Copland, and William de Hellebat (q. Elbottle); all the three are placed before *Aldenus Dapifer*.

"It has been remarked, 'That in those days the title of *stewart* or *dapifer* was too high a title to be given to the retainer of an earl.' I answer, that the Saxon Chronicle, anno 1093, says, 'Morael of Boebahurh was thaes eorles *steward*,' i. e. Morel of Bamborough was this earl's *stewart*, or the *stewart* of Robert Earl of Northumberland. Besides, to a charter granted by Earl Gospatrick the Elder, *Lambertus Dapifer* is a witness. If *Lambertus Dapifer*, in a charter of Gospatrick the Elder, implies *Lambert the stewart of the family of March*, why should *Aldenus Dapifer*, in the charters of the son and grandson of Gospatrick, imply *the stewart of Scotland*?

"I believe that no defender of the common hypothesis will answer this objection, by pretending that *Lambertus Dapifer* was indeed *stewart of Scotland*. Such an answer would leave no room for Walter *stewart* of Scotland, who is held to have been a distinguished personage in the reign of Malcolm III.

"It is curious to see upon what slight grounds our antiquaries have established the connection between *Aldenus Dapifer* and the house of Stewart. *Walterus filius Alani* appears to have flourished in the reign of David I. In the reign of Malcolm IV. he is termed *Dapifer*. Hence it has been rashly concluded, that *Walterus Dapifer filius Alani* was the son of that *Aldenus Dapifer* who is a witness to the charters of Gospatrick and Waldeve.

"I persuade myself, that *Aldenus Dapifer*, and *Alen the father of Walter Stewart* of Scotland, in the reign of Malcolm IV. were different persons; and that they had nothing in common but the Christian name, if indeed they had that in common.

"Some of my readers may demand, 'Who then was Alen the father of Walter, *stewart* of Scotland in the reign of Malcolm IV.?'

"I can only answer this question by demanding, 'Who was the father of Martach Earl of Mar in the reign of Malcolm III.; of Gilchrist Earl of Angus in the reign of Alexander I.; of Fergus Lord of Galloway in the reign of Malcolm IV.; or of Friskinus de Moravia, ancestor of the family of Sutherland, in the reign of William the Lion? Or, to keep in the supposed line of the royal family of Stewart, 'Who was the father of Banquo Thane of Lochaber?'

"Many answers may no doubt be made to this last question. Kennedy says, that the father of Banquo was one of the seven sons of Corc king of Munster; Sir George M'Kenzie, Of Ferquhard, the son of Kenneth III.; and Simpson, The son of Ferquhard Thane of Lochaber, the son of Kenneth, the son of Murdoch, the son of Dair, the son of Eth king of Scotland.

"It is remarkable, that Abercrombie relates all those contradictory stories, without ever suspecting the natural inference arising from them, 'That if noble persons are not satisfied with a long pedigree, proved by authentic instruments, they must believe in flattering and ignorant fictions; and that if they scorn to wait for the dawn of record to enlighten their descent, they must bewilder themselves in dark and fabulous genealogies.'

"In the reign of David I. before the middle of the 12th century, the family of the Stewarts was opulent and powerful. It may therefore have subsisted for many ages previous to that time; but when, and what was its commencement, we cannot determine."

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Berwick
taken and
retaken.

earl of Northumberland, resolved to 'take signal vengeance. He ravaged the Scots borders, particularly the earl of March's estate, for three days, at the head of 10,000 men. Some time after this, the Scots insurgents became powerful enough to surprise Berwick; which, however, was quickly retaken by the English, who soon after invaded Scotland. In this expedition, however, they succeeded so ill, that Percy thought proper to desist from his expedition. The Scots in the mean time began hostilities by sea, under one Mercer, an experienced sailor; but he had the misfortune to be taken prisoner by the English, with all his fleet. In 1379, England was afflicted with a dreadful plague, of which the Scots took advantage to invade the country. The English historians tell us that they behaved with the utmost barbarity, killing and plundering the defenceless inhabitants without mercy.

This predatory war continued, generally to the disadvantage of the English, till the beginning of November 1380, when a truce was concluded, to continue for a year; which, however, related only to the borders. This truce, like the others, was but very indifferently observed; so that, in 1383, new negotiations were set on foot: but, in 1384, the war was renewed with greater fury than ever. In the spring, the earls of March and Douglas took the castle of Lochmaben, and intercepted a rich convoy which the English were sending to Roxburgh; burnt to the ground the castle of Wark, and committed such devastations in the north of England, that several gentlemen offered to resign their estates to King Richard, because they were not able to defend them against the Scots. The Duke of Lancaster entered Scotland at the head of an army; but the inhabitants had removed every thing valuable, so that he marched on to Edinburgh without accomplishing any thing of consequence. On his return, he was harassed by flying parties of Scots, who destroyed a considerable number of his men. This year also the French sent a body of auxiliaries into Scotland. The earls of Northumberland and Nottingham entered Scotland with an army of 10,000 horse and 6000 archers; but retired, after having committed some devastations in the southern counties. The Scots revenged themselves by laying waste all the northern part of England to the gates of Newcastle. Berwick was taken by the Scots, and soon after surrendered for the sum of 2000 marks. A truce was then, as usual, concluded; but in the mean time king Robert was meditating a most severe blow against the English.

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Formidable
invasion of
England
projected.

The Duke of Burgundy having come to the possession of the estate of his father-in-law the earl of Flanders, claimed the sovereignty of the town of Ghent; but they refused to submit to him, and in this refusal were protected by king Richard II. of England. On this the duke of Burgundy proposed to the French court to invade England in concert with the Scots.— This being agreed to, a fleet was fitted out at Sluys; on board of which John de Vienne, the French admiral, embarked, carrying along with him 50,000 pounds in gold, which the duke of Burgundy advanced in order to be distributed in Scotland, where the admiral arrived safe with a considerable reinforcement, together with supplies of all kinds of military stores. Two thousand auxiliaries, of whom 500 were men-at-arms, arrived with this fleet; and 400 suits of complete ar-

mour were brought along with them, in order to be distributed among the bravest of the Scots.

The Scots were for a short time elated with the great attention which had been paid them by the French king; but, in the mean time, the Flemings having revolted, the French abandoned the Scots to sustain the whole weight of the English resentment, that they themselves might employ their arms in Flanders. King Richard took the field with a more numerous army than had ever been mustered in England before. Hostilities were begun by the Scots, who, according to custom, invaded the northern parts of England, and carried off a considerable booty: however, in their retreat, they were in the utmost danger of being cut off by the duke of Lancaster, who had been sent with an army to intercept them. The English army proceeded northwards; but could accomplish nothing, on account of the country being desolated, till they came to Edinburgh, which they laid in ashes. Being, however, incessantly harassed by parties of the enemy, they were obliged to retreat.

Nothing remarkable happened till the year 1378, when, after a short truce, the war was renewed with fresh fury. Northumberland and Westmoreland were ravaged by the earls of Fife and Douglas, and Lord Nithsdale defeated a body of 3000 English; after which he formed the plan of invading Ireland, the inhabitants of which had of late been very active against the Scots. In 1388, Douglas obtained permission to raise a body of forces for this invasion; and having landed in safety, defeated the Irish, plundered the town of Carlingford, and loaded fifteen ships with the booty. From thence the Scots sailed to the isle of Man, which in like manner was plundered and laid waste; after which they returned with their booty to Loch Rian in Scotland.

Encouraged by this success, Robert determined to proceed on a more enlarged plan. Having assembled a parliament at Aberdeen, a double invasion of England was resolved upon. Two armies were raised; the one, consisting of 25,000 men, commanded by the earls of Mentieth and Fife, Douglas lord of Galloway, and Alexander Lindsay; the other army, consisting of the like number, was commanded by the earls of Douglas, March, Crawford, Moray, the lord high Constable of Scotland, and other persons of distinction. The former entered Cumberland, and the latter Northumberland, both which countries they laid waste, and both armies were to meet within ten miles of Newcastle. The English were thrown into the greatest consternation. Newcastle was defended by the earl of Northumberland, whose age and infirmities rendered him incapable of taking the field; but his place was abundantly supplied by his two sons Henry and Ralph, the former of whom is known in English history by the name of *Hotspur*. The town was garrisoned by the flower of the English nobility and gentry, as well as the inhabitants of the adjacent countries, who had fled thither for refuge. Douglas selected 2000 foot and 300 horsemen out of the two armies, and encamped on the north side of the town, with a view, according to the Scots historians, of storming it next day. In the mean time, he was challenged by Hotspur to fight him hand to hand, with sharp ground spears, in sight of both armies. Douglas accepted the challenge, and Percy was unhorsed the first encounter, and obliged to take refuge within the port. Percy.

tlan 1.

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le of
burn.261
Eng-
defeat-
and earl
Douglas
ed.

portcullis or gate of the town; from whence Douglas brought off his antagonist's lance, with a pennon affixed to it, and swore in his hearing that he would carry it into Scotland. Next day Douglas attempted to storm the town; but, being repulsed in the attack, he decamped in the night. Percy, breathing furious revenge, pursued and overtook the Scots at Otterburn. His arrival was quite unexpected, so that the principal commanders of the Scottish army were sitting down to supper unarmed. The soldiers, however, were instantly prepared for battle; but in the hurry necessarily attending a surprise of this kind, Douglas forgot to put on his cuirass. Both leaders encouraged their men by the most animating speeches; and both parties waited for the rise of the moon, which happened that night to be unusually bright. The battle being joined on the moon's first appearance, the Scots began to give ground; but, being rallied by Douglas, who fought with a battle-ax, the English, though greatly superior in number, were totally routed. Twelve hundred were killed on the spot; and 100 persons of distinction, among whom were the two Percies, were made prisoners by Keith marshal of Scotland. On the side of the Scots the greatest loss was that of the brave earl Douglas, who was killed in consequence of going to battle without his armour, as above related. It was this single combat between Douglas and Percy, and the subsequent battle, which gave rise to the celebrated ballad of Chevy Chase.

In the mean time the bishop of Durham was marching towards Newcastle with an army of 10,000 men; but was informed by the runaways of Percy's defeat, which happened on the 21st of July 1388. In a council of war it was resolved to pursue the Scots, whom they hoped easily to vanquish, as being wearied with the battle of the preceding day, and laden with plunder. The earl of Moray, who commanded in chief, having called a consultation of his officers, resolved to venture a battle. The prisoners were almost as numerous as the whole Scots army; however, the generals required no more of them than their words of honour that they should continue inactive during the battle, and remain prisoners still. This condition being complied with, the Scots drew out their army for battle. — Their rear was secured by marshes, and their flanks by large trees which they had felled. In short, their appearance was so formidable, that the English, dreading to encounter a resolute enemy so strongly secured, retired to Newcastle, leaving the Scots at liberty to continue their march to their own country.

Robert being now oppressed with age, so that he could no longer endure the fatigues of government, the administration of affairs devolved upon his second son the earl of Fife; for his eldest son was by nature indolent, and besides lame by an unlucky blow he had received from a horse. Early in the spring of 1389, he invaded England with success: but the same year a truce was concluded, to last from the 19th of June 1389 to the 16th of August 1392; in which the allies of both crowns were included. This truce was violently opposed by the nobility, who suspected their king of being too much under French influence. Upon this the court of France thought proper to send over ambassadors to persuade the nobility to comply; informing them, that in case of a refusal, they could expect no

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assistance either of men or money from the continent. Scotland. With difficulty they prevailed, and peace between England and Scotland was once more restored. Scarce, however, was this truce finished, when the peace of the nation was most scandalously violated by Robert's third son the earl of Buchan. This prince having a quarrel with the bishop of Murray, burnt down the fine cathedral of Elgin, which has been called by historians the lanthorn and ornament of the north of Scotland. The king for this crime caused his son to be imprisoned; and a civil war would have been the consequence, had it not been for the veneration which the Scots retained for their old king. However, they did not long enjoy their beloved monarch; for he died on the 19th of April 1390, in the 75th year of his age, and the 19th of his reign.

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Robert II.
dies, and
is succeed-
ed by Ro-
bert III.

On the death of Robert II. the crown devolved upon his eldest son John; but the name being thought unlucky in Scotland, he changed it for that of Robert, though he was still called by the commonalty *Robert John Fernzier*. He had been married to Annabella, the daughter of Sir John Drummond, ancestor to the noble family of Perth; and was crowned along with his consort at Scone, on the 13th of August 1390. He confirmed the truce which had been entered into with England, and renewed the league with France; but the beginning of his reign was disturbed by the wars of the petty chieftains with each other. Duncan Stewart, son to Alexander earl of Buchan, who had died in prison for burning the cathedral of Elgin, assembling his followers under pretence of revenging his father's death, laid waste the county of Angus. Walter Ogilvy, the sheriff of Angus, attempting to repel the invaders, was killed, with his brother and 60 of their followers. The king then gave a commission to the earl of Crawford to suppress them; which he soon did, and most of them were either killed or executed. The followers of the earl of Buchan were composed of the wildest Highlanders, distinguished by the title of *Catterenes*, which answers to that of banditti. That such a race of people existed is certain from the records of Scotland; but it is not easy to determine how they obtained their subsistence, being void of the knowledge of agriculture and of every civil art. There is some reason to believe that many of them came from the Western Isles; and that they or their ancestors had emigrated from the eastern parts of Ireland. The lands they inhabited were never cultivated till towards the middle of the last century; and, according to the most authentic accounts, they lived entirely upon animal food.

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Rebellion
of the earl
of Buchan.264
Account of
the Catter-
enes.

The earl of Crawford's success against the followers of Buchan encouraged Robert to intrust him with a commission for subduing other insurgents by whom the peace of the country was disturbed. The most remarkable of these were the *Clan Chattan* and *Clan Kay*. As both these tribes were numerous and brave, Crawford was not without apprehensions that they might unite against him as a common enemy, and defeat him if he attempted to suppress them by force. He proposed, therefore, that the two rival clans should each choose 30 men, to determine their differences by the sword, without being allowed the use of any other weapon. The king and his nobility were to be spectators of the combat; the conquered clan were to be pardoned for all their former offences, and the conquerors honoured

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Battle be-
tween the
champions
of the clan
Chattan
and clan
Kay.

Scotland

with the royal favour. This proposal was readily accepted by both parties, and the north inch of Perth was to be the scene of action. But, upon mustering the combatants, it was found that one of them, belonging to the clan Chattan, had absented himself. It was proposed to balance this difference by withdrawing one of the combatants from the clan Kay; but not one of them could be prevailed on to resign his place. At last one Henry Wynd, a saddler, though no way connected with either party, offered to supply the place of him that was absent, on condition of his receiving a French crown of gold (about 7 s. 6 d. of our money); which was immediately paid him. The combat then began with incredible fury; but at last, through the superior valour and skill of Henry Wynd, victory declared in favour of the clan Chattan. Only ten of the conquerors, besides Wynd, were left alive; and all of them desperately wounded. Of the clan Kay only one remained; and he having received no hurt escaped by swimming across the Tay.

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Title of
Duke in-
troduced
into Scot-
land.

While these internal broils were going on, the truce which had lately been concluded with England was so ill observed, that it became necessary to enter into fresh negotiations. These, like others which had taken place before, had very little effect. The borderers on both sides had been so accustomed to ravage and plunder, that they could not live in quiet. King Robert also was thought to be too much attached to the king of England. He had introduced the new title of *duke*, which he bestowed first on the prince royal; but making an offer of that honour to one of the heads of the Douglas family, it was rejected with disdain. That powerful family had never lost sight of an ancient claim they had upon the castle of Roxburgh, which was still in the possession of the English; and this year the son of the earl of Douglas, Sir William Stewart, and others, broke down the bridge of Roxburgh, plundered the town, and destroyed the forage and corn there and in the neighbouring country. The English applied for satisfaction; but obtained none, as the confusion which involved the kingdom by the deposition of Richard II. and the accession of Henry IV. prevented them from having recourse to arms, the only argument to which the Scots patriots in those days would listen.

No sooner was the catastrophe of Richard known in Scotland, than they resolved to avail themselves of it; and invading the north parts of England, demolished the castle of Wark, and laid the neighbouring country under contribution. The situation of Henry's affairs did not admit of his resenting this insult. He contented himself with nominating his brother the earl of Westmoreland, to treat with the Scots about a truce or peace; or, if that could not be obtained, to make a mutual agreement, that the towns of Dumfries in Scotland, and Penrith in England, should be free from hostilities during the war. To this proposal the Scots paid no regard; and being encouraged by the court of France, who resented the deposition of Richard, they renewed their ravages in England. In 1400, the king of England called a parliament, in order to consult on the most proper means of repelling the Scottish invasions; and in this he was greatly assisted by the divisions of the Scots among themselves. The duke of Rothesay, the heir-

apparent of the crown, was now grown up to man's estate, and it was thought proper to provide a suitable comfort for him. The king is said to have scandalously put up his son's marriage at auction, and offered him to the lady whose father could give him the highest price. The earl of March was the highest bidder; and advanced a considerable sum in ready money, on condition that his daughter should become the royal bride.— This fordid match was opposed by Douglas, who proposed his own daughter the lady Margery. So degenerate was the court of Scotland at this time, that neither the king nor the duke of Rothesay opposed this proposal of a new match, because it was to be purchased with a fresh sum; and they even refused to indemnify the earl of March for the money he had already advanced.

As the duke of Albany sided with Douglas, a council of the nobility was privately assembled, which annulled the contract of the lady Elizabeth Dunbar, the earl of March's daughter, in favour of the lady Margery, daughter to the earl of Douglas; but without taking any measures for repaying the money to the earl of March. The continuator of Fordun informs us, that the earl of Douglas paid a larger sum for his daughter's fortune than that which had been advanced by the earl of March, and that the earl of Douglas's daughter was married to the duke of Rothesay: that, before the marriage was celebrated, March demanded that the money he had advanced should be reimbursed; but receiving an unsatisfactory answer, he declared, that as the king had not fulfilled his bargain, he would bring unexpected calamities upon the country. Accordingly he fled into England, leaving his castle of Dunbar to the custody of his nephew Robert Maitland, who soon after put it into the hands of the earl of Douglas, called in history *Archibald the Grim*, from the sternness of his visage.

As soon as Robert heard of the revolt of the earl of March, he sent ambassadors demanding back his subject; but the request was disregarded. On the other hand, the earl of March demanded repossession of the castle of Dunbar, pleading, that he had committed no act of treason, but had come to England under a safe conduct from king Henry, on purpose to negotiate his private affairs: but this request was disregarded; upon which he sent for all his family and followers to England, where they joined him in great numbers. This produced a war between the two kingdoms. The earl of March, with Henry Percy, furnished *Hotspur*, invaded Scotland, penetrating as far as Haddington, and carrying off great numbers of the inhabitants into captivity. From thence they went to Peebles, and then to Linton, ravaging the country all the way as they passed along. They next besieged the castle of Hales, and took several of the neighbouring forts; but Archibald the Grim, or rather his son, having raised an army against them, they were struck with terror, and fled to Berwick, to the gates of which they were pursued by the Scots. At this time the Scottish admiral, Sir Robert Logan, was at sea with a squadron; but miscarried in an attempt he made upon some English ships of war that protected their fleet when fishing upon the coast of Scotland. After this the English plundered the Orkney islands; which, though belong-

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Merceda-
behaviour
of Robert
with re-
gard to his
son's ma-
riage.

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Earl of
March
volts.

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Invasion
Scotland
Henry
Percy.

Scotland. ing to the crown of Norway, were at that time governed, or rather farmed, by Sinclair the Scots earl of Orkney and Caithness.

All this time the earl of March continued under the protection of the king of England. He had received repeated invitations to return to his allegiance: but all of them being rejected, he was proclaimed a traitor; and the Scottish governor made a formal demand of him from king Henry. With this the latter not only refused to comply, but renewed his league with the lord of the isles. He pretended also, that at this time he had intercepted some letters from the Scottish regency, which called him "a traitor in the highest degree;" and he alleged this as a reason why he protected not only the earl of March but the lord of the Isles.

On the 25th of July 1400, the earl of March renounced his homage, fealty, and service, to the king of Scotland, and transferred them to Henry by a formal indenture. For this the earl was rewarded with a pension of 500 marks Sterling, and the manor of Clipstone in Sherwood forest. Henry now began to revive the claim of homage from the kings of Scotland, and even to meditate the conquest of the kingdom. He had indeed many reasons to hope for success; the principal of which were, the weakness of the Scottish government, the divided state of the royal family, and the dissensions among the chief nobility. For this purpose he made great preparations both by sea and land; but before he set out on his journey, he received a letter from the duke of Rothesay, full of reproaches on account of the presumptuous letters which Henry had addressed to Robert and his nobility. The letter was addressed by the duke to his adversary of England, as the Scots had not yet recognized the title of Henry to the crown of England. Towards the end of it the duke, according to the custom of the times, desired Henry, in order to avoid the effusion of Christian blood, to fight him in person with two, three, or an hundred noblemen on a side. But this challenge produced no other answer from Henry, than that "he was surprised that the duke of Rothesay should consider noble blood as not being *Christian*, since he desired the effusion of the one, and not of the other." Henry arrived at Leith on the very day in which he had appointed the Scottish nobility to meet him and pay their homage, and conclude a peace between the two crowns. In all probability, he expected to have been joined by great numbers of the discontented Scots; and he flattered the English with a promise of raising the power and glory of their country to a higher pitch than it had ever known. Under this pretext, he seized upon the sum of 350,000 pounds in ready money, besides as much in plate and jewels, which had been left by Richard in the royal treasury. He raised also vast contributions on the clergy and nobility, and likewise on the principal towns and cities. At last, finding that neither his vast preparations, nor the interest of the earl of March, had brought any of the Scots to his standard, he formed the siege of Edinburgh castle, which was defended by the duke of Rothesay, and, as some say, by the earl of Douglas. The duke of Albany, brother to king Robert, was then in the field with an army, and sent a letter to king Henry, promising, that if he would remain where he was for six days, he would give

him battle, and force him to raise the siege, or lose his life. When this was written, the duke was at Caldermuir; and Henry was so much pleased with the letter, that he presented the herald who delivered it with his upper garment, and a chain of gold; promising, on his royal word, that he would remain where he was until the appointed day. On this occasion, however, the duke forfeited his honour; for he suffered six days to elapse without making any attempt on the English army.

Henry, in the mean time, pushed on the siege of Edinburgh castle; but met with such a vigorous resistance from the duke of Rothesay, that the hopes of reducing it were but small. At the same time he was informed that the Welsh were on the point of rebellion under the famous chieftain named *Owen Glendower*. He knew also that many of the English were highly dissatisfied with his title to the crown; and that he owed his peaceable possession of it to the moderation of the earl of March, who was the real heir to the unfortunate Richard, but a nobleman of no ambition. For these reasons he concluded it best to raise the siege of Edinburgh castle, and to return to England. He then agreed to a truce for six weeks, but which was afterwards prolonged, probably for a year, by the commissioners of the two crowns, who met at Kelso.

In 1401, Scotland suffered a great loss by the death of Walter Trail, the archbishop of St Andrew's, a most exemplary patriot, and a person of great influence. Archibald Douglas the Grim had died some time before, and his loss was now severely felt; for the king himself, naturally feeble, and now quite disabled by his age and infirmities, was sequestered from the world in such a manner, that we know not even the place of his residence during the last invasion of Scotland by the English. This year also queen Anabella died, so that none remained who might be able to heal those divisions which prevailed among the royal family. Robert duke of Albany, a man of great ambition, was an enemy to the duke of Rothesay, the heir-apparent to the crown; and endeavoured, for obvious reasons, to impress his father with a bad opinion of him. This prince, however, appears to have been chargeable with no misdemeanour of any consequence, excepting his having debauched, under promise of marriage, the daughter of William Lindsay of Rossy. But this is not supported by any credible evidence; and, though it had been true, could never justify the horrid treatment he met with, and which we are now about to relate.

One Ramorgny, a man of the vilest principles, but an attendant on the duke of Rothesay, had won his confidence; and, perceiving how much he resented the conduct of his uncle the duke of Albany, had the villainy to suggest to the prince the dispatching him by assassination. The prince rejected this infamous proposal with such horror and displeasure, that the villain, being afraid he would disclose it to the duke of Albany, informed the latter, under the seal of the most inviolable secrecy, that the prince intended to murder him; upon which the duke, and William Lindsay of Rossy his associate in the treason, resolved upon the prince's death. By practising upon the doating king, Lindsay and Ramorgny obtained a writ directed to the duke of Albany, empowering him to arrest his son, and to keep him under restraint, in order for his amendment. The same

Scotland.

traitors had previously possessed the prince with an apprehension that his life was in danger, and had persuaded him to seize the castle of St Andrew's, and to keep possession of it during the vacancy of that see. Robert had nominated one of his bastard brethren, who was then deacon of St Andrew's, to that bishopric: but being a person no way fitted for such a dignity, he declined the honour, and the chapter refused to elect any other during his lifetime; so that the prince had a prospect of possessing the castle for some time. He was riding thither with a small attendance, when he was arrested between the towns of Nidd and Strathmure (according to the continuator of Fordun), and hurried to the very castle of which he was preparing to take possession.

272
Who is
starved to
death.

The duke of Albany, and the earl of Douglas, who was likewise the prince's enemy, were then at Culross, waiting the event of their detestable conspiracy; of which they were no sooner informed, than they ordered a strong body of ruffians to carry the royal captive from the castle of St Andrew's; which they did, after clothing him in a russet cloak, mounting him on a very sorry horse, and committing him to the custody of two execrable wretches, John Selkirk and John Wright, who were ordered by the duke of Albany to starve him to death. According to Buchanan, his fate was for some time prolonged by the compassion of one of his keeper's daughters, who thrust thin oat cakes through the chinks of his prison-walls, and by a woman who, being a wet nurse, found means to convey part of her milk to him through a small tube. Both these charitable females were detected, and put to death; the young lady's inhuman father being himself the prosecutor. The prince himself died a few days after, on Easter-eve, his hunger having impelled him to devour part of his own flesh.

273
A body of
Scots cut
off by the
English.

In the mean time, Robert, being yet ignorant of the murder of his son, had renewed, or rather consented to renew, hostilities with England. On the expiration of the truce, Henry had sent a commission to the earls of Northumberland and Westmoreland, to offer the Scots any terms they could reasonably desire; but every offer of this kind being rejected, there was a necessity for renewing hostilities. The earl of March had received another pension from Henry, on condition of his keeping on foot a certain number of light troops to act against the Scots. This had been done; and so effectually did these now annoy their enemies, that the earl of Douglas was obliged to take the field against them. By dividing his men into small parties, he repressed the depredations of these invaders; and Thomas Haliburton, the commander of one of the Scottish parties, made incursions into England as far as Bamborough, from whence he returned with a considerable booty. This encouraged another chieftain, Patrick Hepburn, to make a similar attempt: but being elated with his success, he remained too long in the enemy's country; so that the earl of March had time to send a detachment to intercept him on his return. This produced a desperate encounter, in which Hepburn was killed; the flower of the youth of Lothian, who had attended in this expedition, were cut off, and scarce a single Scotsman remained unwounded.

On the news of this disaster, the earl of Douglas applied to the duke of Albany for assistance. He was

immediately furnished with a considerable army, according to some, consisting of 10,000; according to others of 13,000; and according to the English historians, of 20,000 men. Murdoc, the son of the duke, attended the earl on this expedition, as did also the earls of Moray, Angus, Orkney, and many others of the chief nobility, with 80 knights. The Scots on this occasion conducted themselves with the same imprudence they had done before. Having penetrated too far into the country, they were intercepted by the English on their return, and obliged to engage at a place called *Homeldon*, under great disadvantages. The consequence was, that they were utterly defeated, and almost the whole army either killed or taken.

274
Their de-
feat at
Homeldon

Henry Hotspur, to whom this victory was chiefly owing, resolving to pursue the advantage he had gained, entered the southern parts of the kingdom, and laid siege to a castle called *Cocklawys*, on the borders of Teviotdale. The castle was for some time bravely defended: but at last the governor entered into a treaty, by which it was agreed to deliver up the castle, in case it was not relieved by the king or governor in six weeks; during which time no additional fortifications were to be made. But while the English were retiring, one of Percy's soldiers pretended that the Scots had broke the capitulation, by introducing a mattock into the place. The governor, hearing of this charge, offered to fight any Englishman who should engage to make it good. A champion was accordingly singled out, but was defeated by the Scotsman; and the English army retired according to agreement. The matter then being debated in the Scottish council, it was resolved to send relief to the castle. Accordingly the duke of Albany, with a powerful army, set out for the place; but before he came there, certain news were received of the defeat and death of Hotspur, at Shrewsbury, as related under the article ENGLAND, n° 182.

275
Cocklawys
castle be-
sieged by
the English

In the year 1404, king Henry, exceedingly desirous of a peace with Scotland, renewed his negotiations for that purpose. These, however, not being attended with success, hostilities were still continued, but without any remarkable transaction on either side. In the mean time, king Robert was informed of the miserable fate of his eldest son the duke of Rothesay; but was unable to resent it by executing justice on such a powerful murderer. After giving himself up to grief, therefore, for some time, he resolved to provide for the safety of his second son James, by sending him into France. This scheme was not communicated to the duke of Albany; and the young prince took shipping with all imaginable secrecy at the Bass, under the care of the earl of Orkney. On his voyage he was taken by an English privateer off Flamborough-head, and brought before Henry. The English monarch having examined the attendants of the prince, they told him that they were carrying the prince to France for his education. "I understand the French tongue (replied Henry), and your countrymen ought to have been kind enough to have trusted me with their prince's education." He then committed the prince and his attendants close prisoners to the tower of London. The news of this disaster arrived at the castle of Rothesay in the isle of Bute (the place of Robert's residence) while the king was at supper. The news threw him into such an agony of grief, that he died in three days,

276
The Scot-
tish prince
James, sent
to France,
but is taken
by the Eng-
lish.

277
Robert die-
d of grief.

Scotland. days, the 29th of March 1405, after having reigned near 15 years.

278 By the death of Robert; and the captivity of the prince, all the power devolved upon the duke of Albany, who was appointed regent by a convention of the states assembled at Scone. The allegiance of the people, however, to their captive prince could not be shaken; so that the regent was obliged to raise an army for the purpose of rescuing him. Henry summoned all his military tenants, and made great preparations: but, having agreed to treat of a final peace with Ireland and the lord of the Isles, the regent laid hold of this as a pretence for entering into a new negociation with the English monarch; and a truce was concluded for a year, during which time all differences were to be settled. In consequence of this agreement, Rothefay, king at arms, was appointed commissary-general for the king and kingdom of Scotland; and in that quality repaired to the court of England. At the time when the prince of Scotland was taken, it seems that there had been a truce, however ill observed on both sides, subsisting between the two nations. Rothefay produced the record of this truce, which provided that the Scots should have a free navigation; and in consequence of this, he demanded justice of the captain and crew of the privateer who had taken the prince. Henry ordered the matter to be inquired into: but the English brought their complaints as well as the Scots; and the claims of both were so intricate, that the examination fell to the ground, but at the same time the truce was prolonged.

279 schemes of Henry against Scotland.

In the end of the year 1409, or the beginning of 1410, the war was renewed with England, and Henry prepared to strike a fatal blow which he had long meditated against Scotland. He had, as we have seen, entered into a league with the lord of the Isles, where a considerable revolution then happened. Walter Lesley had succeeded to the estate and honours of the earl of Ross, in right of his wife, who was the heir. By that marriage, he had a son named *Alexander*, who succeeded him; and a daughter, Margaret, who was married to the lord of the Isles. This Alexander had married one of the regent's daughters; and dying young, he left behind him an only daughter, Euphane, who was deformed, and become a nun at North Berwick. Her grandfather, the regent, procured from her a resignation of the earldom of Ross, to which she was undoubted heir, in favour of John earl of Buchan, but in prejudice of Donald lord of the Isles, who was the son of Margaret, sister to the earl Alexander, and consequently the nearest heir to the estate after the nun. Donald applied for redress; but his suit being rejected, he, with his brother John, fled into England, where he was most graciously received by king Henry. According to the instructions given him by the English monarch, Donald returned to his own dominions in the Isles, where he raised an army, and passing over into Ross-shire, violently seized on the estate in dispute. In a short time he found himself at the head of 10,000 Highlanders; with whom he marched into the province of Moray, and from thence to Strathbogie and Garioch, which he laid under contribution. Advancing towards Aberdeen, with a view to pay his troops with the plunder of that city, which was then a place of considerable trade, he was met by the earl of Marr, whom the re-

gent had employed to command against him, at a village called *Harlaw*, in the neighbourhood of Aberdeen. A fierce engagement ensued, in which great numbers were killed on both sides, and the victory remained uncertain: but Donald, finding himself in the midst of an enemy's country, where he could raise no recruits, began to retreat next day; and the shattered state of the royal army preventing him from being pursued, he escaped to his own dominions, where in a short time he submitted, and swore allegiance to the crown of Scotland.

In the mean time, Henry continued the war with Scotland, and refused to renew the truce, though frequently solicited by the Scots. He had now, however, sustained a great loss by the defection of the earl of March, who had gone over to the Scots, though the historians have not informed us of his quarrel with the English monarch. On his return to Scotland, he had been fully reconciled to the Douglas family, and now strove to distinguish himself in the cause of his country. This, with the countenance which was shown the Scots by the court of France, a bull published by the pope in their favour, and the vigorous behaviour of the regent himself, contributed to reduce Henry to reason; and we hear of no more hostilities between the two nations till after the death of the English monarch, which happened in the year 1413.

In 1415, the truce being either broken or expired, the Scots made great preparations for besieging Berwick. The undertaking, however, came to nothing; all that was done during the campaign being the burning of Penrith by the Scots, and of Dumfries by the English. Next year a truce was agreed upon, and a treaty entered into for the ransom of King James; which was so far advanced, that the English king agreed to his visiting Scotland, provided he engaged to forfeit 100,000 pounds Sterling in case of his failure to return by a certain day. For reasons now unknown, this treaty was broken off, and vast preparations were made for a new invasion of Scotland; which, however, was executed with so little success, that it became known among the common people of Scotland by the name of the *fool raid*, or the foolish expedition.

In 1420, died Robert duke of Albany, regent of Scotland, at the age of 80; and such was the veneration which the Scots had for his memory, that his post of regent was conferred upon his eldest son Murdoch, though a person no way qualified for that station. The war with England was now discontinued; but in France Henry met with the greatest opposition from the Scots auxiliaries, inasmuch, that at last he proclaimed all the Scots in the service of the Dauphin to be rebels against their lawful sovereign, and threatened to treat them as such wherever he found them. It was not long before he had an opportunity of putting this menace in execution; for the town and castle of Melun being obliged through famine to capitulate, one of the articles of capitulation was, that all the English and Scots in the place should be resigned to the absolute disposal of the king of England; and, in consequence of his resolution above-mentioned, caused twenty Scots soldiers who were found in the place to be hanged as traitors. In 1421, Henry returned to England, and with him James the Scots king. On his

Scotland. 280 Battle of Harlaw.

281 The earl of March returns to his allegiance to Scotland.

282 Unsuccessful expedition of Henry.

283 His cruelty to the Scots in France.

Scotland. animal there, he was informed that the Scots, under the earl of Douglas, had made an irruption into England, where they had burned Newark, but had been forced to return to their own country by a pestilence, though a new invasion was daily expected. Instead of resenting this insult, Henry invited the earl of Douglas to a conference at York; in which the latter agreed to serve him during life, by sea and land, abroad or at home, against all living, except his own liege-lord the king of Scotland, with 200 foot and as many horse, at his own charges; the king of England, in the mean time, allowing an annual revenue of 200*l.* for paying his expence in going to the army by sea or land.

At the same time, a new negotiation was set on foot for the ransom of king James; but he did not obtain his liberty till the year 1424. Henry V. was then dead; and none of his generals being able to supply his place, the English power in France began to decline. They then became sensible how necessary it was to be at peace with Scotland, in order to detach such a formidable ally from the French interest. James was now highly caressed, and at his own liberty, within certain bounds. The English even consulted him about the manner of conducting the treaty for his ransom; and one Dougal Drummond, a priest, was sent with a safe conduct for the bishop of Glasgow, chancellor of Scotland, Dunbar earl of March, John Montgomery of Ardrossan, Sir Patrick Dunbar of Bele, Sir Robert Lawder of Edrington, Sir William Borthwic of Borthwic, and Sir John Forrester of Corforphin, to have an interview, at Pomfret, with their master the captive king of Scotland, and there to treat of their common interests. Most of these noblemen and gentlemen had before been nominated to treat with the English about their king's return; and Dougal Drummond seems to have been a domestic favourite with James. Hitherto the Scottish king had been allowed an annual revenue of 700 pounds: but while he was making ready for his journey, his equipages and attendants were increased to those befitting a sovereign; and he received a present from the English treasury of 100*l.* for his private expences. That he might appear with a grandeur every way suitable to his dignity, at every stage were provided relays of horses, and all manner of fish, flesh, and fowl, with cooks and other servants for furnishing out the most sumptuous royal entertainment. In this meeting at Pomfret, James acted as a kind of a mediator between the English and his own subjects, to whom he fully laid himself open; but, in the mean time, the English regency issued a commission for settling the terms upon which James was to be restored, if he and his commissioners should lay a proper foundation for such a treaty. The English commissioners, were the bishops of Durham and Worcester, the earls of Northumberland and Westmoreland, the lords Nevil, Cornwall, and Chaworth, with master John Wodeham, and Robert Waterton. The instructions they received form one of the most curious passages of this history; and we shall here give them, as they are necessary for confirming all we have said concerning the dispositions of the two courts at this juncture.

First, To make a faint opposition to any private conference between the king of Scotland and the Scotch commissioners.

Scotland. Secondly, To demand that, before the said king shall have his full liberty, the kingdom of Scotland should pay to the English government at least thirty-six thousand pounds as an equivalent, at two thousand pounds a-year, for the entertainment of King James, who was maintained by the court of England, and not to abate any thing of that sum; but if possible to get forty thousand pounds.

Thirdly, That if the Scots should agree to the payment of the said sum, the English commissioners should take sufficient security and hostages for the payment of the same; and that if they should not (as there was great reason for believing they would) be so far mollified, by such easy terms, as to offer to enter upon a negotiation for a final and perpetual peace between the two people, that then the English should propose the same in the most handsome manner they could. Farther, that if such difficulties should arise as might make it impracticable immediately to conclude such perpetual peace, that the English ambassadors should, under pretence of paving a way for the same, propose a long truce.

Fourthly, That in case the English commissioners should succeed in bringing the Scots to agree to the said truce, they should further urge, that they should not send to Charles of France, or to any of the enemies of England, any succours by sea or land. Farther, that the said English commissioners should employ their utmost endeavours to procure the recall of the troops already furnished by the Scots to France. The English are commanded to insist very strenuously upon this point, but with discretion.

Fifthly, If the Scots should, as a further bond of amity between the two nations, propose a marriage between their king and some noblewoman of England, the English commissioners are to make answer, "That the king of the Scots is well acquainted with many noblewomen, and even those of the blood-royal, in England; and that if the king of the Scots shall please to open his mind more freely on that head, the English commissioners shall be very ready to enter upon conferences thereupon." But (continues the record) in case the Scotch commissioners should make no mention of any such alliance by marriage, it will not appear decent for the English to mention the same, because the women of England, at least the noblewomen, are not used to offer themselves in marriage to men.

Sixthly, If there should be any mention made concerning reparation of damages, that the commissioners should then proceed upon the same as they should think most proper; and that they should have power to offer safe-conduct to as many of the Scots as should be demanded, for to repair to the court of England. Those instructions are dated at Westminster, July 6th 1423.

Nothing definitive was concluded at this treaty, but that another meeting should be held at York instead of Pomfret. This meeting accordingly took place. The English commissioners were, Thomas bishop of Durham, chancellor of England, Philip bishop of Winchester, Henry Percy earl of Northumberland, and Mr John Wodeham. Those for Scotland were, William bishop of Glasgow, George earl of March, James Douglas of Balveny, his brother Patrick abbot of Cambuskenneth, John abbot of Balmerino, Sir Patrick Dun-

Scotland. bar of Bele, Sir Robert Lauder of Edrington, Mr George Borthwic archdeacon of Glasgow, and Patric Houston canon of Glasgow. On the tenth of September, after their meeting, they came to the following agreement:

First, That the king of Scotland and his heirs, as an equivalent for his entertainment while in England, should pay to the king of England and his heirs, at London, in the church of St Paul, by equal proportions, the sum of forty thousand pounds Sterling.

Secondly, That the first payment, amounting to the sum of ten thousand merks, should be made six months after the king of Scotland's entering his own kingdom; that the like sum should be paid the next year, and so on during the space of six years, when the whole sum would be cleared; unless, after payment of forty thousand merks, the last payment of ten thousand should be remitted, at the intreaty of the most illustrious prince Thomas duke of Exeter.*

Thirdly, That the king of Scotland, before entering his own kingdom, should give sufficient hostages for performance on his part. But, in regard that the Scots plenipotentiaries had no instructions concerning hostages, it was agreed,

Fourthly, That the king of Scotland should be at Branspeth, or Durham, by the first of March next, where he should be attended by the nobles of his blood, and other subjects, in order to fix the number and quality of the hostages.

Fifthly, That, to cement and perpetuate the amity of the two kingdoms, the governor of Scotland should send ambassadors to London, with power to conclude a contract of marriage between the king of Scotland and some lady of the first quality in England.

James, it is probable, had already fixed his choice upon the lady Joan, daughter to the late earl of Somerset, who was son to John of Gaunt duke of Lancaster, by his second marriage; but he made his people the compliment, not only of consulting their opinion, but of concluding the match. The commissioners, after their agreement at York, proceeded towards London; and Thomas Somerville of Carnwath, with Walter Ogilvy, were added to their number. Being arrived at that capital, they ratified the former articles, and undertook for their king, that he should deliver his hostages to the king of England's officers, in the city of Durham, before the last day of the ensuing month of March; that he should also deliver to the said officers four obligatory letters, for the whole sum of 40,000*l*. from the four burghs of Edinburgh, Perth, Dundee, and Aberdeen; that he should give his obligatory letter to the same purpose, before removing from Durham, and should renew the same four days after his arrival in his own kingdom; that the hostages might be changed from time to time for others of the same fortune and quality; that if any of them should die in England, others should be sent thither in their room; and that while they continued to stay in England, they should live at their own charges.

The marriage of James with the lady Joan Beaufort was celebrated in the beginning of February 1424. The young king of England presented him with a suit of cloth of gold for the ceremony; and the next day he received a legal discharge of 10,000 pounds, to be deducted from the 40,000 at which his ransom

was fixed, and which sum was given as the marriage-portion of the lady. The ceremony being performed, the king and queen set out for Durham, where the hostages were waiting; and arrived at his own dominions, along with the earl of Northumberland and the chief of the northern nobility, who attended him with great pomp. On the 20th of April the same year, he was crowned at Scone; after which ceremony, he followed the example practised by other sovereigns at that time, of knighting several noblemen and gentlemen.

During the dependence of the treaty for James's release, the Scots had emigrated to France in such numbers, that no fewer than 15,000 of them now appeared in arms under the duke of Touraine; but as the history of the war in that country has already been given under the article FRANCE, we shall take no farther notice of it at present, but return to the affairs of Scotland.

On his return James found himself in a disagreeable situation. The great maxim of the duke of Albany, when regent, had been to maintain himself in power, by exempting the lower class of people from taxes of every kind. This plan had been continued by his son Murdoch; but as the latter was destitute of his father's abilities, the people abused their happiness, and Scotland became such a scene of rapine, that no commoner could say he had a property in his own estate. The Stewart family, on their accession to the crown of Scotland, were possessed of a very considerable patrimonial estate, independent of the standing revenues of the crown, which consisted chiefly of customs, wards, and reliefs. The revenues of the paternal estate belonging to James, had they been regularly transmitted to him, would have more than maintained him in a splendour equal to his dignity, while he was in England; nor would he in that case have had any occasion for an allowance from the king of England. But as the duke of Albany never intended that his nephew should return, he parcelled out among his favourites the estate of the Stewart family, in such a manner that James upon his return found all his patrimonial revenues gone, and many of them in the hands of his best friends; so that he had nothing to depend on for the support of himself and his court but the crown-revenues above-mentioned, and even some of these had been mortgaged during the late regency. This circumstance, of itself sufficiently disagreeable, was attended with two others, which tended to make it more so. The one was, that the hostages which had been left for the king's ransom in England, being all of them persons of the first rank, were attended by their wives, families, children, and equipages, which rivalled those of the same rank in England, and drew a great deal of ready money out of the nation. The other circumstance arose from the charge of the Scots army in France; where Charles, who had never been in a condition to support it, was now reduced to the utmost necessity: while the revenues of James himself were both scanty and precarious. To remedy these inconveniences, therefore, the king obtained from his parliament an act obliging the sheriffs of the respective counties to inquire what lands and estates had belonged to his ancestors David II. Robert II. and Robert III.; and James formed a resolution of resumming these lands wherever they could be discovered, without regard to persons or circumstances. On this occasion

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He reforms several abuses in Scotland.

²⁸⁷ Scotland. occasion many of the most illustrious personages in the kingdom were arrested: the duke of Albany, his two sons, and the earl of Lennox the duke's father-in-law, were put to death; though their crimes are not specified by historians. Buchanan mentions a tradition, that James barbarously sent to the countess of Lennox the heads of her father, husband, and sons; for the following more barbarous reason, that in the bitterness of her grief she might drop some expressions tending to involve others in the same catastrophe. The countess, however, calmly said, "That, if the charges against the criminals were proved, they deserved their fate."

James now proceeded with great spirit to reform the abuses which had pervaded every department of the state, protected and encouraged learning and learned men, and even kept a diary in which he wrote down the names of all the learned men whom he thought deserving of his encouragement. James himself wrote some poetry; and in music was such an excellent composer, that he is with good reason looked upon as the father of Scots music, which has been so much admired for its elegant simplicity. He introduced organs into his chapels, and a much better style of architecture into all buildings whether civil or religious. Neither did he confine his cares to the fine arts, but encouraged and protected those of all kinds which were useful to society; and, in short, he did more towards the civilization of his people than had been done by any of his predecessors.

In the mean time the truce continued with England. James, however, seemed not to have any inclination to enter into a perpetual alliance with that kingdom. On the contrary, in 1428, he entered into a treaty with France; by which it was agreed, that a marriage should be concluded between the dauphin of France, afterwards Louis XI. and the young prince of Scotland; and so great was the necessity of king Charles for troops at that time, that he demanded only 6000 forces as a portion for the prince.

²⁸⁸
The king
murdered

The rest of the reign of James was spent in reforming abuses, curbing the authority of the great barons, and recovering the royal estates out of the hands of usurpers. In this, however, he used so much severity, that he was at last murdered, in the year 1437. The perpetrators of this murder were the earl of Athol; Robert Grahame, who was connected with the earl, and who was discontented on account of his losing the estate of Strathern, which had been re-annexed to the crown; and Robert, grandchild and heir to the earl of Athol, and one of the king's domestics. The king had dismissed his army, without even reserving to himself a body-guard, and was at supper in a Dominican convent in the neighbourhood of Perth. Grahame had for some time been at the head of a gang of outlaws, and is said to have brought a party of them to Perth in the dead of the night, where he posted them near the convent. Walter Straton, one of the king's cup-bearers, went to bring some wine to the king while at supper; but perceiving armed men standing in the passage, he gave the alarm, and was immediately killed. Catharine Douglas, one of the queen's maids of honour, ran to bolt the outer door; but the bar was taken away by Robert Stuart, in order to facilitate the entrance of the murderers. The lady thrust her arm into the sta-

ple; but it was instantly broken, and the conspirators rushed in upon the king. Patric Dunbar, brother to the earl of March, was killed in attempting to defend his sovereign, and the queen received two wounds in attempting to interpose herself betwixt her husband and the daggers of the assassins. James defended himself as long as he could; but at last expired under the repeated strokes of his murderers, after having received 28 wounds.

After the murder of James I. the crown devolved upon his son James II. at that time only seven years of age. A parliament was immediately called by the queen-mother, at which the most cruel punishments were decreed to the murderers of the late king. The crime, no doubt, deserved an exemplary punishment; but the barbarities inflicted on some of those wretches are shocking to relate. Within less than six weeks after the death of the king, all the conspirators were brought to Edinburgh, arraigned, condemned, and executed. The meaner sort were hanged; but on the earl of Athol and Robert Graham the most cruel torments were inflicted, such as pinching with hot irons, dislocation of the joints, &c. The earl of Athol, had, besides, a crown of red-hot iron put on his head; and was afterwards cut up alive, his heart taken out, and thrown into a fire. In short, so dreadful were these punishments, that Aeneas Sylvius, the pope's nuncio, who beheld them, said, that he was at a loss to determine whether the crime committed by the regicides, or the punishment inflicted upon them, was the greater.

As the late king had prescribed no form of a regency in case of his death, the settlement of the government became a matter of great difficulty as well as importance. Archibald earl of Douglas, who had been created Duke of Touraine in France, was by far the greatest subject in the kingdom; but as he had not been a favourite in the preceding reign, and the people were now disgusted with regencies, he was not formally appointed to the administration, though by his high rank he in fact enjoyed the supreme power as long as he lived; which, however, was but a short time. He died the same year (1438); and Sir Alexander Livingstone of Callendar was appointed to succeed him as governor of the kingdom, that is, to have the executive power, while William Crichton, as chancellor, had the direction of the civil courts. This was a most unfortunate partition of power for the public. The governor and chancellor quarrelled; the latter took possession of the king's person and the castle of Edinburgh, to neither of which he had any right; but the former had on his side the queen-mother, a woman of intrigue and spirit. Her son was shut up in the castle of Edinburgh; and in a short time there was no appearance either of law or government in Scotland. The governor's edicts were counteracted by those of the chancellor under the king's name, and those who obeyed the chancellor were punished by the governor; while the young earl of Douglas, with his numerous followers and dependents, was a declared enemy of both parties, whom he equally sought to destroy.

The queen-mother demanded access to her son, which Crichton could find no pretext for denying her; and she was accordingly admitted with a small train into the castle of Edinburgh. She played her part so well, and

Scotland.

²⁸⁹
Succeeded
by
James II.

²⁹⁰
Supreme
power di-
vided be-
tween the
governor
and chan-
cellor of
the king-
dom.

²⁹¹
The queen
mother se-
her son at
liberty.

and dissembled with so much art, that the chancellor, imagining she had become a convert to his cause, treated her with unbounded confidence, and suffered her at all hours to have free access to her son's person. Pretending that she had vowed a pilgrimage to the white church of Buchan, she recommended the care of her son's person, till her return, to the chancellor, in the most pathetic and affectionate terms; but, in the mean time, she secretly sent him to Leith, packed up in a clothes-chest; and both she and James were received at Stirling by the governor before the escape was known. As every thing had been managed in concert with Livingston, he immediately called together his friends; and laying before them the tyrannical behaviour of the chancellor, it was resolved to besiege him in the castle of Edinburgh, the queen promising to open her own granaries for the use of the army. The chancellor foresaw the storm that was likely to fall upon him, and sought to prevent it by applying to the earl of Douglas. That haughty nobleman answered him in the terms already mentioned, and that he was preparing to exterminate both parties. The siege of Edinburgh castle being formed, the chancellor demanded a parley, and to have a personal interview with the governor; which the latter, who was no stranger to the sentiments of Douglas, readily agreed to. Common danger united them in a common cause; and the chancellor resigning to the other the custody of the castle and the king's person, with the highest professions of duty and loyalty, the two competitors swore an inviolable friendship for each other. Next day the king cemented their union, by confirming both of them in their respective charges.

The lawless example of the earl of Douglas encouraged the other great landholders to gratify their private animosities, sometimes at the expence of their honour as well as their humanity. A family-difference happened between Sir Allan Stuart of Darley, and Thomas Boyd of Kilmarnock; but it was concluded that both parties should come to a peaceable agreement at Polmaisthorpe, between Linlithgow and Falkirk, where Stuart was treacherously murdered by his enemy. Stuart's death was revenged by his brother, Sir Alexander Stuart of Beilmouth, who challenged Boyd to a pitched battle, the principals being attended by a retinue which carried the resemblance of small armies. The conflict was fierce and bloody, each party retiring in its turn, and charging with fresh fury; but at last victory declared itself for Stuart, the bravest of Boyd's attendants being cut off in the field. About this time, the islanders, under two of their chieftains, Lauchlan Maclean and Murdoc Gibson, notorious freebooters, invaded Scotland, and ravaged the province of Lenox with fire and sword. They were opposed by John Colquhoun of Luss, whom they slew, some say treacherously, and others, in an engagement at Lochlomond, near Inchmartin. After this, the robbers grew more outrageous than ever, not only filling all the neighbouring country with rapine, but murdering the aged, infants, and the defenceless of both sexes. At last, all the labouring hands in the kingdom being engaged in domestic broils, none were left for agriculture; and a dreadful famine ensued, which was attended, as usual, by a pestilence. James was now about ten years of age; and the wisest part of the kingdom agreed, that

the public distresses were owing to a total disrespect of Scotland, the royal authority. The young earl of Douglas never had fewer than 1000, and sometimes 2000 horse in his train; so that none was found hardy enough to controul him. He pretended to be independent of the king and his courts of law; that he had a right of judicature upon his own large estates; and that he was entitled to the exercise of royal power. In consequence of this he issued his orders, gave protections to thieves and murderers, affected to brave the king, made knights, and, according to some writers, even noblemen, of his own dependents, with a power of sitting in parliament.

The queen-mother was not wholly guiltless of those abuses. She had fallen in love with and married Sir James Stuart, who was commonly called the *Black Knight of Lorn*, brother to the lord of that title, and a descendant of the house of Darnley. Affection for her husband caused her to renew her political intrigues; and not finding a ready compliance in the governor, her interest inclined towards the party of the Douglasses. The governor sought to strengthen his authority by restoring the exercise of the civil power, and the reverence due to the person of the sovereign.

The conduct of the lord Callendar was in many respects so defensible, either as to prudence or policy. When the queen expressed her inclination that her husband might be admitted to some part of the administration, the governor threw both him and his brother the lord Lorn into prison, on a charge of undutiful practices against the state, and abetting the earl of Douglas in his enormities. The queen, taking fire at her husband's imprisonment, was herself confined in a mean apartment within the castle of Stirling; and a convention of the states was called, to judge in what manner she was to be proceeded against. The case was unprecedented and difficult; nor can we believe the governor would have carried matters to such extremity, had he not had strong evidences of her illegal behaviour. She was even obliged to dissemble her resentment, by making an open profession before the states, that she had always been entirely innocent of her husband's practices, and that she would for the future behave as a peaceable and dutiful subject to the laws and the sovereign. Upon making this purgation (as B. it is called, Lindfay calls it), she was released, as also her husband and his brother, being bailed by the chancellor and the lord Gordon, who became sureties for their good behaviour in the penalty of 4000 merks. The governor was afterwards accused of many arbitrary and partial acts of power: and indeed, if we consider his situation, and the violence of the parties which then divided Scotland, it was almost impossible, consistently with his own safety, to have exerted the virtues either of patriotism or moderation.

The chancellor was exceedingly vexed at the small regard which the governor paid to his person and dignity, and secretly connected himself with the queen-mother; but in the mean time he remained at Edinburgh. The king and his mother continued all this time at Stirling; where the governor, on pretence of consulting the public safety, and that of the king's person, maintained a strong guard, part of which attended James in his juvenile exercises and diversions. The queen-mother did not fail to represent this to her

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The chan-
cellor gets
the king's
person into
his hands.

son as a restraint upon his liberty; and obtained his consent to put himself into the chancellor's hands. The latter, who was a man of activity and courage, knew well how to avail himself of this permission; and crossing the Forth in the dark with a strong body of horse, they surrounded the king as he was hunting next morning by break of day. It was easy to perceive from the behaviour of James, that he was no stranger to the chancellor's attempt; but some of the king's guard offering to dispute the possession of his person, Sir William Livingston, the governor's eldest son, restrained them, and suffered the king to depart quietly. This surprisal happened on a day when the governor was absent from Stirling; and the chancellor, to make sure of his royal acquisition, entered Edinburgh at the head of 4000 horse, where the king and he were received by the citizens with loud acclamations of joy.

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Rebellious
behaviour
of the earl
of Douglas.

The governor showed no emotion at what had happened; on the contrary, he invited the chancellor to an interview, and settled all differences with him in an amicable manner. The young lord Douglas, however, continued to brave both parties. As if he had been a sovereign prince, he demanded by his ambassadors, Malcolm Fleming of Cumbernauld, and Allan Lawder, the investiture of the sovereignty of Touraine from Charles the seventh of France; which being readily granted him, served to increase his pride and insolence. The first-fruits of the accommodation between the two great officers of state was the holding of a parliament at Edinburgh, for redressing the public disorders occasioned by the earl of Douglas; and encouragement was given to all persons who had been injured to make their complaints. The numbers which on that occasion resorted to Edinburgh were incredible; parents, children, and women, demanding vengeance for the murder of their relations, or the plunder of their estates; till, by the multiplicity of their complaints, they became without remedy, none being found bold enough to encounter the earl of Douglas, or to endeavour to bring him to a fair trial. The parties therefore were dismissed without relief, and it was resolved to proceed with the haughty earl in a different manner. Letters were written to him by the governor and chancellor, and in the name of the states, requesting him to appear with his friends in parliament, and to take that lead in public affairs to which they were intitled by their high rank and great possessions. The manner in which those letters were penned made the thoughtless earl consider them as a tribute due to his greatness, and as proceeding from the inability of the government to continue the administration of public affairs without his countenance and direction. Without dreaming that any man in Scotland would be so bold as to attack him, even single or unarmed, he answered the letters of the chancellor and governor, by assuring them that he intended to set out for Edinburgh: the chancellor, on pretence of doing him honour, but in reality to quiet his suspicions, met him while he was on his journey; and inviting him to his castle of Crichton, he there entertained him for some days with the greatest magnificence and appearance of hospitality. The earl of Douglas believed all the chancellor's professions of friendship, and even sharply checked the wisest of his followers, who counselled him not to depend too much on appearances, or to trust his brother and himself at

the same time in any place where the chancellor had power. The latter had not only removed the earl's suspicion, but had made him a kind of convert to patriotism, by painting to him the miseries of his country, and the glory that must redound to him and his friends in removing them. It was in vain for his attendants to remind him of his father's maxim, never to risk himself and his brother at the same time: he without hesitation attended the chancellor to Edinburgh; and being admitted into the castle, they dined at the same table with the king. Towards the end of the entertainment, a bull's head, the certain prelude of immediate death, was served up. The earl and his brother started to their feet, and endeavoured to make their escape: but armed men rushing in, overpowered them, and tying their hands and those of Sir Malcolm Fleming with cords, they were carried to the hill and beheaded. The young king endeavoured with tears to procure their pardon; for which he was severely checked by his unrelenting chancellor.

In 1443, the king being arrived at the age of 14, declared himself out of the years of minority, and took upon himself the administration of affairs. He appears to have been a prince of great spirit and resolution; and he had occasion for it. He had appointed one Robert Sempil of Fulwood to be chief governor of the castle of Dumbarton; but he was killed by one Galbraeth (a noted partizan of the earl of Douglas), who seized upon the government of the castle. The popularity of the family of Douglas having somewhat subsided, and the young earl finding himself not supported by the chief branches of his family, he began to think, now that the king was grown up, his safest course would be to return to his duty. He accordingly repaired to the king at Stirling; and voluntarily throwing himself at his majesty's feet, implored his pardon for all his transgressions, and solemnly promised that he would ever after set a pattern of duty and loyalty to all the rest of his subjects. The king, finding that he insisted on no terms but that of pardon, and that he had unconditionally put himself into his power, not only granted his request, but made him the partner of his inmost councils.

James had always disliked the murder of the earl of Douglas and his brother; and the chancellor, perceiving the ascendancy which this earl was daily gaining at court, thought it high time to provide for his own safety. He therefore resigned the great seal, and retired to the castle of Edinburgh, the custody of which he pretended had been granted to him by the late king during his life, or till the present king should arrive at the age of 21; and prepared it for a siege. The lord Callendar, who knew himself equally obnoxious as Crichton was to the earl of Douglas, and that he could not maintain his footing by himself, resigned likewise all his posts, and retired to one of his own houses, but kept possession of the castle of Stirling. As both that and the castle of Edinburgh were royal forts, the two lords were summoned to surrender them; but instead of complying, they justified their conduct by the great power of their enemies, who sought their destruction, and who had been so lately at the head of robbers and outlaws; but promised to surrender themselves to the king as soon as he was of lawful age, (meaning, we suppose, either 18 or 21). This answer being deemed

con-

Scotland. contumacious, the chancellor and the late governor, with his two sons Sir Alexander and Sir James Livingston, were proclaimed traitors in a parliament which was summoned on purpose to be held at Stirling. In another parliament held at Perth the same year, an act passed, that all the lands and goods which had belonged to the late king should be possessed by the present king to the time of his lawful age, which is not specified. This act was levelled against the late governor and chancellor, who were accused of having alienated to their own uses, or to those of their friends, a great part of the royal effects and jewels; and their estates being confiscated, the execution of the sentence was committed to John Forrester of Corstorphin, and other adherents of the earl of Douglas.

This sentence threw all the nation into a flame. The castle of Crichton was besieged; and being surrendered upon the king's summons and the display of the royal banner, it was levelled with the ground. It soon appeared that the governor and chancellor, the latter especially, had many friends; and in particular Kennedy bishop of St Andrew's, nephew to James the first, who sided with them from the dread and hatred they bore to the earl of Douglas and his family. Crichton thus soon found himself at the head of a body of men; and while Forrester was carrying fire and sword into his estates and those of the late governor, his own lands and those of the Douglasses were overrun. Corstorphin, Abercorn, Blackness, and other places, were plundered; and Crichton carried off from them more booty than he and his adherents had lost. Particular mention is made of a fine breed of mares which Douglas had lost on this occasion. That nobleman was so much exasperated by the great damages he had sustained, that he engaged his friends the earl of Crawford and Alexander Ogilvy of Innerquharity, to lay waste the lands of the bishop of St Andrew's, whom he considered as the chief support of the two ministers. This prelate was not more considerable by his high birth, than he was venerable by his virtue and sanctity; and had, from a principle of conscience, opposed the earl of Douglas and his party. Being conscious he had done nothing that was illegal, he first admonished the earl of Crawford and his coadjutor to desist from destroying his lands; but finding his admonitions ineffectual, he laid the earl under an excommunication.

That nobleman was almost as formidable in the northern, as the earl of Douglas had been in the southern, parts of Scotland. The benedictine monks of Aberbrothwic, who were possessed of great property, had chosen Alexander Lindsay, his eldest son, to be the judge or bailiff of their temporalities; as they themselves, by their profession, could not fit in civil or criminal courts. Lindsay proved so chargeable, by the great number of his attendants, and his high manner of living, to the monks, that their chapter removed him from his post, and substituted in his place Alexander Ogilvy of Innerquharity, guardian to his nephew John Ogilvy of Airley, who had an hereditary claim upon the bailiwick. This, notwithstanding their former intimacy, created an irreconcilable difference between the two families. Each competitor strengthened himself by calling in the assistance of his friends; and the Lord Gordon taking part with the Ogilvies, to whom he was

Scotland. then paying a visit, both parties immediately mustered in the neighbourhood of Aberbrothwic. The earl of Crawford, who was then at Dundee, immediately posted to Aberbrothwic, and placing himself between the two armies, he demanded to speak with Ogilvy; but, before his request could be granted, he was killed by a common soldier, who was ignorant of his quality. His death exasperated his friends, who immediately rushed on their enemies; and a bloody conflict ensued, which ended to the advantage of the Lindseys, that is, the earl of Crawford's party. On that of the Ogilvies were killed Sir John Oliphant of Aberdargy, John Forbes of Pittligo, Alexander Barclay of Gartley, Robert Maxwell of Teling, Duncan Campbell of Campbellfether, William Gordon of Burrowfield, and others. With those gentlemen, about 500 of their followers are said to have fallen; but some accounts diminish that number. Innerquharity himself, in flying, was taken prisoner, and carried to the earl of Crawford's house at Finhaven, where he died of his wounds; but the Lord Gordon (or, as others call him, the earl of Huntley) escaped by the swiftness of his horse.

This battle seems to have let loose the fury of civil discord all over the kingdom. No regard was paid to magistracy, nor to any description of men but that of clergy. The most numerous, fiercest, and best allied family, wreaked its vengeance on its foes, either by force or treachery; and the enmity that actuated the parties, stifled every sentiment of honour, and every feeling of humanity. The Lindseys, secretly abetted and strengthened by the earl of Douglas, made no other use of their victory than carrying fire and sword through the estates of their enemies; and thus all the north of Scotland presented scenes of murder and devastation. In the west, Robert Boyd of Duchar, governor of Dumbarton, treacherously surprised Sir James Stuart of Achmynto, and treated his wife with such inhumanity, that she expired in three days under her confinement in Dumbarton castle. The castle of Dunbar was taken by Patrick Hepburn of Hales. Alexander Dunbar dispossessed the latter of his castle of Hales; but it was retaken by the partisans of the earl of Douglas, whose tenants, particularly those of Annandale, are said to have behaved at that time with peculiar fierceness and cruelty. At last, the gentlemen of the country, who were unconnected with those robbers and murderers, which happened to be the case with many, shut themselves up in their several houses; each of which, in those days, was a petty fortress, which they victualled, and provided in the best manner they could for their own defence. This wise resolution seems to have been the first measure that composed the public commotions.

The earl of Douglas, whose power and influence at court still continued, was sensible that the clergy, with the wiser and more disinterested part of the kingdom, considered him as the source of the dreadful calamities which the nation suffered; and that James himself, when better informed, would be of the same opinion. He therefore sought to avail himself of the juncture, by forming secret but strong connections with the earls of Crawford, Ross, and other great noblemen, who wanted to see their feudal powers restored to their full vigour. The queen-dowager and her husband made little or no figure during this season of public confusion: she

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had retired to the castle of Dunbar, while it was in Hepburn's possession, where she died soon after. She left by her second husband three sons; John, who in 1455 was made earl of Athol, by his uterine brother the king; James, who under the next reign, in 1469, was created earl of Buchan; and Andrew, who afterwards became bishop of Murray. As the earl of Douglas was an enemy to the queen-dowager's husband, the latter retired to England, where he obtained a pass to go abroad, with 20 in his train; but being taken at sea by the Flemish pirates, he died in his confinement.

The great point between the king and Sir William Crichton, whether the latter should give up the castle to his majesty, remained still undecided; and by the advice and direction of the earl of Douglas, who had been created lord-lieutenant of the kingdom, it had now suffered a nine months siege. Either the strength of the castle, or an opinion entertained by Douglas that Crichton would be a valuable acquisition to his party, procured better terms for the latter than he could otherwise have expected; for he and his followers were offered a full indemnity for all past offences, and a promise was made that he should be restored not only to the king's favour, but to his former post of chancellor. He accepted of the conditions; but refused to act in any public capacity till they were confirmed by a parliament, which was soon after held at Perth, and in which he was restored to his estate and honours. By this reconciliation between Douglas and Crichton, the former was left at full liberty to prosecute his vengeance against the Lord Callendar, the late governor, his friends and family. That vengeance was exercised with rigour. The governor himself, Sir James Dundas of Dundas, and Sir Robert Bruce of Clackmannan, were forced to save their lives by the loss of their estates; but even that could not preserve their liberty, for they were sent prisoners to the castle of Dumbarton. The fate of Alexander, the governor's eldest son, and of two other gentlemen of his name and family, was still more lamentable; for they were condemned to lose their heads. Those severities being inflicted after the king had in a manner readmitted the sufferers into his favour, swelled the public outcry against the earl of Douglas. We have in Lindsay an extract of the speech which Alexander Livingston, one of the most accomplished gentlemen of his time, made upon the scaffold, in which he complained, with great bitterness, of the cruel treatment his father, himself, and his friends, had undergone; and that he suffered by a packed jury of his enemies.

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Invasion of
Scotland
by the Eng-
lish.

The king being now about 18 years of age, it was thought proper that a suitable comfort should be provided for him; and, after various consultations, Mary, the daughter of Arnold duke of Gueldres, was chosen, at the recommendation of Charles king of France, though the marriage was not completed till some time after. This produced an immediate rupture with England. The earls of Salisbury and Northumberland entered Scotland at the head of two separate bodies. The former burnt the town of Dumfries, as the latter did that of Dunbar; while Sir John Douglas of Balveny made reprisals by plundering the county of Cumberland, and burning Alnwick. Upon the return of the English armies to their own country, additional levies were made, and a fresh invasion of Scotland was resolved up-

on under the earl of Northumberland, who had along with him a lieutenant, whom the Scots of those days, from the bushiness and colour of his beard, called *Magnus with the red mane*. He was a soldier of fortune, but an excellent officer, having been trained in the French wars; and he is said to have demanded no other recompense for his services from the English court, but that he should enjoy all he could conquer in Scotland. The Scots, in the mean time, had raised an army commanded by George Douglas earl of Ormond, and under him by Wallace of Craigie, with the Lords Maxwell and Johnston. The English having passed Solway Frith, ravaged all that part of the country which belonged to the Scots; but hearing that the earl of Ormond's army was approaching, called in their parties, and fixed their camp on the banks of the river Sark. Their advanced guard was commanded by Magnus; their centre by the earl of Northumberland; and the rear, which was composed of Welch, by Sir John Pennington, an officer of courage and experience.

The Scots drew up in three divisions likewise. Their right wing was commanded by Wallace, the centre by the earl of Ormond, and their left wing by the Lords Maxwell and Johnston. Before the battle joined, the earl of Ormond harangued his men, and inspired them with very high resentment against the English, who, he said, had treacherously broken the truce. The signal for battle being given, the Scots under Wallace rushed forward upon their enemies: but, as usual, were received by so terrible a discharge from the English archers, that their impetuosity must have been stopped, had not their brave leader Wallace put them in mind, that their forefathers had always been defeated in distant fights by the English, and that they ought to trust to their swords and spears; commanding them at the same time to follow his example. They obeyed, and broke in upon the English commanded by Magnus, with such fury, as soon fixed the fortune of the day on the side of the Scots, their valour being suitably seconded by their other two divisions. The slaughter (which was the more considerable as both parties fought with the utmost animosity) fell chiefly upon the division commanded by Magnus, who was killed, performing the part of a brave officer; and all his body-guard, consisting of picked soldiers, were cut in pieces.

The battle then became general: Sir John Pennington's division, with that under the earl of Northumberland, was likewise routed; and the whole English army, struck by the loss of their champion, fled towards the Solway, where, the river being swelled by the tide, numbers of them were drowned. The loss of the English in slain amounted to at least 3000 men. Among the prisoners were Sir John Pennington, Sir Robert Harrington, and the earl of Northumberland's eldest son the Lord Percy, who lost his own liberty in forwarding his father's escape. Of the Scots about 600 were killed; but none of note, excepting the brave Wallace, who died three months after of the wounds he had received in this battle. The booty that was made on this occasion is said to have been greater than any that has fallen to the Scots since the battle of Bannockburn.

The rest of the history of this reign consists almost entirely of a relation of the cabals and conspiracies of the great men. The earl of Douglas had entered into a

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301
The battle
of Sark.

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The Eng-
lish enti-
rely de-
feated.

Scotland.
303
Rebellion
of the earl
of Dou-
glas and
others.

confederacy with the earls of Crawford, Moray, and Ross, and appeared on all occasions with such a train of followers as bade defiance to royal power itself. This insolence was detected by the wiser part of the nation; and one Maclellan, who is called the *Tutor of Bomby*, and was nephew to Sir Patrick Gray, captain of the king's guard, refused to give any attendance upon the earl, or to concur in his measures, but remained at home as a quiet subject. This inoffensive behaviour was by the earl considered as treason against himself; and violently seizing upon Maclellan's house and person, he sent him close prisoner to the castle of Douglas. As Maclellan was a gentleman of great worth and reputation, his uncle Gray applied earnestly to James in his favour; and such was that prince's regard for Maclellan, that he wrote and signed a letter for his release, addressed to the earl of Douglas. Upon Gray's delivering this letter to Douglas at his castle, the latter seemed to receive it with the highest respect, and to treat Gray with the greatest hospitality, by inviting him to dinner; but, in the mean time, he gave private orders that Maclellan's head should be struck off, and his body exposed upon the green before the castle covered with a linen cloth. After dinner, the earl told Gray, that he was ready to obey the king's commands; and conducting him to the green, he showed him the lifeless trunk, which he said Gray might dispose of as he pleased. Upon this, Gray mounted his horse, and trusted to his swiftness for his own safety; for he was pursued by the earl's attendants to the gates of Edinburgh.

The conspiracy against James's government was now no longer a secret. The Lords Balveny and Hamilton, with such a number of other barons and gentlemen, had acceded to it, that it was thought to be more powerful than all the force the king could bring into the field. Even Crichton advised James to dissemble. The confederates entered into a solemn bond and oath never to desert one another during life; and, to make use of Drummond's words, "That injuries done to any one of them should be done to them all, and be a common quarrel; neither should they desist, to their best abilities, to revenge them: that they should concur indifferently against whatsoever persons within or without the realm, and spend their lives, lands, goods, and fortunes, in defence of their debates and differences whatsoever." All who did not enter into this association were treated as enemies to the public; their lands were destroyed, their effects plundered, and they themselves imprisoned or murdered. Drummond says, that Douglas was then able to bring 40,000 men into the field; and that his intention was to have placed the crown of Scotland upon his own head. How far he might have been influenced by a scene of the same nature that was then passing between the houses of York and Lancaster in England, we shall not pretend to determine; though it does not appear that his intention was to wear the crown himself, but to render it despicable upon his sovereign's head. It is rather evident, from his behaviour, that he did not affect royalty; for when James invited him to a conference in the castle of Stirling, he offered to comply provided he had a safe conduct. This condition plainly implied, that he had no reliance upon the late act of parliament, which declared the proclamation of the king's peace to be a sufficient se-

curity for life and fortune to all his subjects; and there is no denying that the safe conduct was expedited in the form and manner required.

This being obtained, the earl began his march towards Stirling with his usual great retinue; and arrived there on Shrove-Tuesday. He was received by the king as if he had been the best of his friends, as well as the greatest of his subjects, and admitted to sup-³⁰⁴ Interview between king James and the earl of Dou-
glas.
per with his majesty in the castle, while his attendants were dispersed in the town, little suspecting the catastrophe that followed. The entertainment being over, the king told the earl with an air of frankness, "That as he was now of age, he was resolved to be the father of all his people, and to take the government into his own hands; that his lordship, therefore, had no reason to be under any apprehensions from his old enemies Callendar and Crichton; that there was no occasion to form any confederacies, as the law was ready to protect him; and that he was welcome to the principal direction of affairs under the crown, and to the first place in the royal confidence; nay, that all former offences done by himself and his friends should be pardoned and forgot."

This speech was the very reverse of what the earl of Douglas aimed at. It rendered him, indeed, the first subject of the kingdom; but still he was controulable by the civil law. In short, upon the king's peremptorily putting the question to him, he not only refused to dissolve the confederacy, but upbraided the king for his government. This produced a passionate rejoinder on the part of James; but the earl represented that he was under a safe conduct, and that the nature of his confederacy was such, that it could not be broken but by the common consent of all concerned. The king in-³⁰⁵ The king kills him
sisted upon his setting the example; and the earl con-
tinuing more and more obstinate, James stabbed him with his dagger; and armed men rushing into the room, own hands.
finished the slaughter.

After the death of the earl of Douglas, the confederacy came to nothing. The insurgents excused themselves as being too weak for such an enterprise; and were contented with trailing the safe conduct at a horse's tail, and proclaiming, by trumpets and horns, the king a perjured traitor. They proceeded no farther; and each departed to his own habitation, after agreeing to assemble with fresh forces about the beginning of April. James lost no time in improving this short respite; and found the nation in general much better disposed in his favour than he had reason to expect. The intolerable oppressions of the great barons made his subjects esteem the civil, far preferable to the feudal, subjection: and even the Douglasses were divided among themselves; for the earl of Angus and Sir John Douglas of Dalkeith were among the most forward of the royalists. James at the same time wrote letters to the earl of Huntley, and to all the noblemen of his kingdom who were not parties in the confederacy, besides the ecclesiastics, who remained firmly attached to his prerogative. Before the effect of those letters could be known, the insurgents had returned to Stirling (where James still wisely kept himself upon the defensive); repeated their insolences, and the opprobrious treatment of his safe conduct; and at last they plundered the town, and laid it in ashes. Being still unable to take the castle, partly through their own divisions, and partly through the diversity of the opera-

tions they were obliged to supply, they left Stirling, and destroyed the estate of Sir John Douglas of Dalkeith, whom they considered as a double traitor, because he was a Douglas and a good subject. They then besieged his castle: but it was so bravely defended by Patrick Cockburn, a gentleman of the family of Langton, that they raised the siege; which gave the royal party farther leisure for humbling them.

All this time the unhappy country was suffering the most cruel devastations; for matters were now come to such extremity, that it was necessary for every man to be a royalist or a rebel. The king was obliged to keep on the defensive; and though he had ventured to leave the castle of Stirling, he was in no condition to face the rebels in the field. They were in possession of all the strong passes by which his friends were to march to his assistance; and he even consulted with his attendants on the means of escaping to France, where he was sure of an hospitable reception. He was diverted from that resolution by bishop Kennedy and the earl of Angus, who was himself a Douglas, and prevailed upon to wait for the event of the earl of Huntley's attempts for his service. This nobleman, who was descended from the Seatons, but by marriage inherited the great estates of the Gordons in the north, had raised an army for James, to whose family he and his ancestors, by the Gordons as well as the Seatons, had been always remarkably devoted. James was not mistaken in the high opinion he had of Huntley; and in the mean time he issued circular letters to the chief ecclesiastics and bodies-politic of his kingdom, setting forth the necessity he was under to proceed as he had done, and his readiness to protect all his loyal subjects in their rights and privileges against the power of the Douglasses and their rebellious adherents. Before those letters could have any effect, the rebels had plundered the defenceless houses and estates of all who were not in their confederacy, and had proceeded with a fury that turned to the prejudice of their cause.

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Battle of
Brecchin,
where the
rebels are
defeated.

The indignation which the public had conceived against the king, for the violation of his safe conduct, began now to subside; and the behaviour of his enemies in some measure justified what had happened, or at least made the people suspect that James would not have proceeded as he did without the strongest provocation. The forces he had assembled being unable, as yet, to act offensively, he resolved to wait for the earl of Huntley, who by this time was at the head of a considerable army, and had begun his march southwards. He had been joined by the Forbeses, Ogilvies, Leslie, Grants, Irvings, and other relations and dependents of his family; but having advanced as far as Brecchin, he was opposed by the earl of Crawford, the chief ally of the earl of Douglas, who commanded the people of Angus, and all the adherents of the rebels in the neighbouring counties, headed by foreign officers. The two armies joining battle on the 18th of May, victory was for some time in suspense; till one Collois of Bonny-moon, on whom Crawford had great dependence, but whom he had imprudently disobliged, came over to the royalists with the division he commanded, which was the best armed part of Crawford's army, consisting of battle-axes, broad swords, and long spears. His defection gave the fortune of the day to the earl of Huntley, as it left the centre flank of Crawford's army en-

tirely exposed to the royalists. He himself lost one of his brothers; and fled with another, Sir John Lindsay, to his house at Finhaven, where it is reported that he broke out into the following ejaculation: "That he would be content to remain seven years in hell, to have in so timely a season done the king his master that service the earl of Huntley had performed, and carry that applause and thanks he was to receive from him."

No author informs us of the loss of men on either side, though all agree that it was very considerable upon the whole. The earl of Huntley, particularly, lost two brothers, William and Henry; and we are told, that, to indemnify him for his good services, as well as for the rewards and presents he had made in lands and privileges to his faithful followers, the king bestowed upon him the lands of Badenoch and Lochaber.

The battle of Brecchin was not immediately decisive in favour of the king, but proved so in its consequences. The earl of Moray, a Douglas likewise, took advantage of Huntley's absence to harass and ravage the estates of all the royalists in the north; but Huntley returning from Brecchin with his victorious army, drove his enemy into his own county of Moray, and afterwards expelled him even from thence. James was now encouraged, by the advice of his kinsman Kennedy bishop of St Andrew's, to whose firmness and prudence he was under great obligations, to proceed against the rebels in a legal manner, by holding a parliament at Edinburgh, to which the confederated lords were summoned; and upon their non-compearance, they were solemnly declared traitors. This proceeding seemed to make the rebellion rage more fiercely than ever; and at last, the confederates, in fact, disowned their allegiance to James. The earls of Douglas, Crawford, Ormond, Moray, the Lord Balveny, Sir James Hamilton, and others, signed with their own hands public manifestoes, which were pasted on the doors of the principal churches, importing, "That they were resolved never to obey command or charge, nor answer citation for the time coming; because the king, so far from being a just master, was a bloodfucker, a murderer, a transgressor of hospitality, and a surpriser of the innocent." It does not appear that those and the like atrocious proceedings did any service to the cause of the confederates.

The earl of Huntley continued victorious in the north; where he and his followers, in revenge for the earl of Moray's having burnt his castle of Huntley, seized or ravaged all that nobleman's great estate north of the Spey. When he came to the town of Forres, he burnt one side of the town, because it belonged to the earl, and spared the other, because it was the property of his own friends. James thought himself, from the behaviour of the earl of Douglas and his adherents, now warranted to come to extremities; and marching into Annandale, he carried fire and sword through all the estates of the Douglasses there. The earl of Crawford, on the other hand, having now recruited his strength, destroyed the lands of all the people of Angus and of all others who had abandoned him at the battle of Brecchin; though there is reason to believe, that he had already secretly resolved to throw himself upon the king's mercy.

Nothing but the most obstinate pride and resentment could have prevented the earl of Douglas, at this time, from taking the advice of his friends, by returning to his

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The rebel
lion sup-
pressed.

308
Association
against the
king by the
earls of
Douglas,
Crawford,
&c.

Scotland. his duty; in which case, James had given sufficient intimations that he might expect pardon. He coloured his contumacy with the specious pretext, that his brother's fate, and those of his two kinsmen, sufficiently instructed him never to trust to James or his ministers; that he had gone too far to think now of receding; and that kings, when once offended, as James had been, never pardoned in good earnest. Such were the chief reasons, with others of less consequence, which Drummond has put into the mouth of Douglas at this time. James, after his expedition into Annandale, found the season too far advanced to continue his operations; and returning to Edinburgh, he marched northwards to Angus, to reduce the earl of Crawford, who was the second rebel of power in the kingdom. That nobleman had hitherto deferred throwing himself at the king's feet, and had resumed his arms, in the manner related, only in hopes that better terms might be obtained from James for himself and his party. Perceiving that the earl of Douglas's obstinacy had cooled some other lords of the confederacy, and had put an end to all hopes of a treaty, he resolved to make a merit of breaking the confederacy, by being the first to submit. James having arrived in Angus, was continuing his march through the country, when the earl and some of his chief followers fell on their knees before him on the road, bare-headed and barefooted. Their dreary looks, their suppliant postures, and the tears which streamed abundantly from the earl, were expressive of the most abject contrition; which was followed by a penitential speech made by the earl, acknowledging his crimes, and imploring forgiveness.

James was then attended by his chief counsellors, particularly bishop Kennedy, who, he resolved, should have some share in the favour he meant to extend to the earl. He asked their advice; which proving to be on the merciful side, James promised to the earl and his followers restitution of all their estates and honours, and full pardon for all that had passed. The earl, as a grateful retribution for this favour, before the king left Angus, joined him with a noble troop of his friends and followers; and, attending him to the north, was extremely active in suppressing all the remains of the rebellion there.

The submission of the earl of Crawford was followed by that of the earl of Douglas; which, however, continued only for a short time. This powerful nobleman soon resumed his rebellious practices; and, in the year 1454, raised an army to fight against the king. The king erected his standard at St Andrew's; marched from thence to Falkland; and ordered all the forces of Fife, Angus, and Strathern, with those of the northern parts, to rendezvous by a certain day at Stirling; which they did to the number of 30,000. Douglas assembled his forces, which amounted to 40,000, some say 60,000 men, on the south side of the river Carron, about half way between Stirling and Abercorn. However, notwithstanding this superiority of force, the earl did not think it proper to fight his sovereign. Bishop Kennedy, the prelate of St Andrew's, had advised the king to divide his enemies by offering them pardon separately; and so good an effect had this, that in a few days the earl found himself deserted by all his numerous army, excepting about 100 of his nearest friends and domestics, with whom he retired towards England. His

friends had indeed advised him to come to a battle immediately; but the earl, for reasons now unknown, refused. However, in his journey southward, he raised a considerable body of forces, consisting of his own tenants, of outlaws, robbers, and borderers, with whom he renewed his depredations on the loyal subjects of the king. He was opposed by the earl of Angus, who, though of the name of Douglas, continued firm in the royal cause. An engagement ensued at Ancram-muir; where Douglas was entirely defeated, and he himself, with great difficulty, escaped to an adjacent wood. What his fate was after this battle does not appear; but it is certain that his estates were afterwards forfeited to the king.

The rest of the reign of James II. was spent in making proper regulations for the good of his people. In 1460 he was killed at the siege of Roxburgh castle, by the bursting of a cannon, to which he was too near when it was discharged. This siege he had undertaken in favour of the queen of England, who, after losing several battles, and being reduced to distress, was obliged to apply to James for relief. The nobility who were present concealed his death, for fear of discouraging the soldiers; and in a few hours after, the queen appeared in the camp, and presented her young son, James III. as their king.

James III. was not quite seven years of age at his accession to the crown. The administration naturally devolved on his mother; who pushed the siege of Roxburgh castle with so much vigour, that the garrison was obliged to capitulate in a few days; after which the army ravaged the country, and took and dismantled the castle of Wark.—In 1466, negotiations were begun for a marriage between the young king and Margaret princess of Denmark; and, in 1468, the following conditions were stipulated. 1. That the annual rent hitherto paid for the northern Isles of Orkney and Shetland should be for ever remitted and extinguished. 2. That king Christiern, then king of Denmark, should give 60,000 florins of gold for his daughter's portion, whereof 10,000 should be paid before her departure from Denmark; and that the islands of Orkney should be made over to the crown of Scotland, by way of pledge for the remainder; with this express proviso, that they should return to that of Norway after complete payment of the whole sum. 3. That king James should, in case of his dying before the said Margaret his spouse, leave her in possession of the palace of Linlithgow and castle of Down in Menteith, with all their appurtenances, and the third part of the ordinary revenues of the crown, to be enjoyed by her during life, in case she should choose to reside in Scotland. 4. But if she rather chose to return to Denmark, that in lieu of the said liferent, palace, and castle, she should accept of 120,000 florins of the Rhine; from which sum the 50,000 due for the remainder of her portion being deduced and allowed, the islands of Orkney should be reannexed to the crown of Norway as before.

When these articles were agreed upon, Christiern found himself unable to fulfil his part of them. Being at that time engaged in an unsuccessful war with Sweden, he could not advance the 10,000 florins which he had promised to pay down as part of his daughter's fortune. He was therefore obliged to apply to the plenipotentiaries to accept of 2000, and to take a farther

mort-

Scotland
316
Disgrace of
the earl of
Arran's fa-
mily.

317
Beginning
of James's
misfor-
tunes.

318
Is infatua-
ted with the
belief of
astrology.

319
Death of
the King's
brother the
earl of Mar.

320
Duke of
Albany ar-
rested, but
escapes.

mortgage of the isles of Shetland for the other 8000. The Scottish plenipotentiaries, of whom Boyd earl of Arran was one, gratified him in his request; and this concession is thought to have proved fatal to the earl. Certain it is, that his father was beheaded for treasonable practices alleged to have been committed long before, and for which he produced a parliamentary indemnity to no purpose: the earl himself was divorced from his wife the king's sister, and obliged to live in perpetual exile, while the countess was married to another.

In 1476, those misfortunes began to come on James which afterwards terminated in his ruin. He had made his brother, the duke of Albany, governor of Berwick; and had entrusted him with very extensive powers upon the borders, where a violent propensity for the feudal law still continued. The Humes and the Hepburns, then the most powerful subjects in those parts, could not brook the duke of Albany's greatness, especially after he had forced them, by virtue of a late act, to part with some of the estates which had been inconsiderately granted them in this and the preceding reign. The pretended science of judicial astrology, by which James happened to be incredibly infatuated, was the easiest as well as most effectual engine that could work their purposes. One Andrew, an infamous impostor in that art, had been brought over from Flanders by James; and he and Schevez, then archbishop of St Andrew's, concurred in persuading James that the Scotch lion was to be devoured by his own whelps; a prediction that, to a prince of James's turn, amounted to a certainty.

The condition to which James reduced himself by his belief in judicial astrology, was truly deplorable. The princes upon the continent were smitten with the same infatuation; and the wretches who besieged his person had no safety but by continuing the delusion in his mind. According to Lindsay, Cochran, who had some knowledge of architecture, and had been introduced to James as a master-mason, privately procured an old woman, who pretended to be a witch, and who heightened his terrors by declaring that his brothers intended to murder him. James believed her; and the unguarded manner in which the earl of Mar treated his weakness, exasperated him so much, that the earl giving a farther loose to his tongue in railing against his brother's unworthy favourites, was arrested, and committed to the castle of Craig Miller; from whence he was brought to the Canongate, a suburb of Edinburgh, where he suffered death.

The duke of Albany was at the castle of Dunbar when his brother the earl of Mar's tragedy was acted; and James could not be easy without having him likewise in his power. In hopes of surprising him, he marched to Dunbar: but the duke, being apprized of his coming, fled to Berwick, and ordered his castle of Dunbar to be surrendered to the lord Evendale, though not before the garrison had provided themselves with boats and small vessels, in which they escaped to England. He ventured to come to Edinburgh; where James was so well served with spies, that he was seized,

and committed close prisoner to the castle, with orders that he should speak with none but in the presence of his keepers. The duke had probably suspected and provided against this disagreeable event; for we are told that he had agents, who every day repaired to the castle, as if they had come from court, and reported the state of matters between him and the king, while his keepers were present, in so favourable a light, that they made no doubt of his soon regaining his liberty, and being readmitted to his brother's favour. The seeming negotiation, at last, went so prosperously on, that the duke gave his keepers a kind of a farewell entertainment, previous to his obtaining a formal deliverance; and they drank so immoderately, that being intoxicated, they gave him an opportunity of escaping over the castle wall, by converting the sheets of his bed into a rope. Whoever knows the situation of that fortress, must be amazed at the boldness of this attempt; and we are told that the duke's valet, the only domestic he was allowed to have, making the experiment before his master, broke his neck: upon which the duke, lengthening the rope, fell down unhurt; and carrying his servant on his back to a place of safety, he went on board a ship which his friends had provided, and escaped to France.

In 1482, the king began to feel the bad consequences of taking into his favour men of worthless characters, which seems to have been one of this prince's pernicious foibles. His great favourite at this time was Cochran, whom he had raised to the dignity of earl of the king's Mar. All historians agree that this man made a most infamous use of his power. He obtained at last a liberty of coinage, which he abused so much as to endanger an insurrection among the poor people; for he issued a base coin, called *black money* by the common people, which they refused to take in payments. This favourite's skill in architecture had first introduced him to James; but he maintained his power by other arts: for, knowing that his master's predominant passion was the love of money, he procured it by the meanest and most oppressive methods. James, however, was inclined to have relieved his people by calling in Cochran's money; but he was diverted from that resolution, by considering that it would be agreeable to his old nobility. Besides Cochran, James had other favourites whose professions rendered them still less worthy of the royal countenance; James Hommil a taylor, Leonard a blacksmith, Tortisan a dancing-master, and some others. The favour shown to these men gave so much offence to the nobility, that, after some deliberation, they resolved to remove the king, with some of his least exceptionable domestics (but without offering any violence to his person) to the castle of Edinburgh; but to hang all his worthless favourites over Lawder-bridge, the common place of execution. Their deliberation was not kept so secret as not to come to the ears of the favourites; who suspecting the worst, awakened James before day-break, and informed him of the meeting. He ordered Cochran to repair to it, and to bring him an account of its proceedings (L). According to Lin-
day,

(L) Lindsay's description of this upstart's magnificence is very particular, and may serve to give the reader an idea of the finery of that age. "Cochran (says he), the earl of Mar, came from the king to the council (which

Scotland. say, who seems to have had very minute information as to this event, Cochran rudely knocked at the door of the church, just after the assembly had finished their consultation; and upon Sir Robert Douglas of Lochleven (who was appointed to watch the door) informing them that the earl of Mar demanded admittance, the earl of Angus ordered the door to be thrown open; and rushing upon Cochran, he pulled a maffy gold chain from his neck, saying, that a rope would become him better; while Sir Robert Douglas stripped him of a costly blowing horn he wore by his side, as was the manner of the times, telling him he had been too long the hunter of mischief. Cochran, with astonishment, asked them whether they were in jest or earnest; but they soon convinced him they were in earnest, by pinning down his arms with a common halter till he should be carried to execution.

323 With others The earl of Angus, with some of the chief lords, attended by a detachment of troops, then repaired to the king's tent, where they seized his other favourites, Thomas Preston, Sir William Rogers, James Hommil, William Torfisan, and Leonard: and upbraided James himself, in very rude terms, with his misconduct in government, and even in private life, in not only being counselled by the above minions, but for keeping company with a lady who was called the *Daisy*. We know of no resistance made by James. He only interceded for the safety of a young gentleman, one John Ramsay of Balmain. Cochran, with his other worthless favourites, were hanged over Lawder-bridge before his eyes; and he himself was conducted, under an easy restraint, to the castle of Edinburgh.

324 James con- James, though confined, behaved with great spirit; and even refused to pardon those who had confined him, or who had any hand in the execution at Lawder. At last, however, he was relieved by the duke of Albany, who, at the queen's desire, undertook to deliver her husband from confinement. This he accomplished, as some say, by surprising the castle of Edinburgh; though, according to others, the gates were opened, upon a formal requisition made for that purpose by two heralds at arms. After he had obtained his liberty, the king repaired to the abbey of Holyroodhouse with his brother, who now acted as his first minister. All the lords who were near the capital came to pay him their compliments; but James was so much exasperated at what had happened, that he committed 16 of them prisoners to the castle of Edinburgh. After his release, James granted a patent to the citizens of Edinburgh, and enlarged their privileges.

325 secret ne- In 1487, James finished some secret negotiations in which he had engaged with Henry king of England some time. The principal articles agreed on between the two monarchs were, That king James's second son

Scotland. should marry Catherine the third daughter of Edward IV. and sister to the princess Elizabeth, now queen of England; and that James himself, who was now a widower, should marry queen Elizabeth. A third marriage was also to be concluded between the duke of Rothelay and another daughter of Edward IV. That in order to these treaties, and for ending all controversies concerning the town of Berwick, which the king of Scotland desired so much to possess, a congress should be held the ensuing year.

326 But in the mean time a most powerful confederacy was formed against the king; the origin of which was as follows. James was a great patron of architecture; and being pleased with the situation of Stirling castle, he resolved to give it all the embellishments which that art could bestow; and about this time he made it the chief place of his residence. He raised within it a hall, which at that time was deemed a noble structure; and a college, which he called the chapel-royal. This college was endowed with an archdean who was a bishop, a subdean, a treasurer, a chanter and subchanter, with a double set of other officers usually belonging to such institutions. The expences necessary for maintaining these were considerable, and the king had resolved to assign the revenues of the rich priory of Coldingham for that purpose. This priory had been generally held by one of the name of Hume; and that family, through length of time, considered it as their property: they therefore strongly opposed the king's intention. The dispute seems to have lasted some years: for the former parliament had passed a vote, annexing the priory to the king's chapel-royal; and the parliament of this year had passed a statute, strictly prohibiting all persons, spiritual and temporal, to attempt any thing, directly or indirectly, contrary or prejudicial to the said union and annexation. The Humes resented their being stripped of so gainful a revenue, the loss of which affected most of the gentlemen of that name; and they united themselves with the Hepburns, another powerful clan in that neighbourhood, under the lord Hales. An association was soon formed; by which both families engaged to stand by each other, and not to suffer any prior to be received for Coldingham, if he was not of one of their surnames. The lords Gray and Drummond soon joined the association; as did many other noblemen and gentlemen, who had their particular causes of discontent. Their agents gave out, that the king was grasping at arbitrary power; that he had acquired his popularity by deep hypocrisy; and that he was resolved to be signally revenged upon all who had any hand in the execution at Lawder. The earl of Angus, who was the soul of the confederacy, advised the conspirators to apply to the old earl of Douglas to head them: but that nobleman was now dead to all ambition, and instead

A powerful confederacy formed against the king.

327 Owing to a quarrel with the family of Hume. 5 H of

(which council was holden in the kirk of Lawder for the time), who was well accompanied with a band of men of war, to the number of 300 light axes, all clad in white livery, and black bends thereon, that they might be known for Cochran the earl of Mar's men. Himself was clad in a riding-pie of black velvet, with a great chain of gold about his neck, to the value of 500 crowns; and four blowing horns, with both the ends of gold and silk, set with precious stones. His horn was tipped with fine gold at every end, and a precious stone, called a *beryl*, hanging in the midst. This Cochran had his heumont borne before him, overgilt with gold; so were all the rest of his horns; and all his pallions (pavilions or tents) were of fine canvas of silk, and the cords thereof fine twined silk; and the chains upon his pallions were double overgilt with gold."

Scotland:

of encouraging the conspirators, he pathetically exhorted them to break off all their rebellious connections, and return to their duty; expressing the most sincere contrition for his own past conduct. Finding he could not prevail with them, he wrote to all the numerous friends and descendants of his family, and particularly to Douglas of Cavers, sheriff of Teviotdale, dissuading them from entering into the conspiracy; and some of his original letters to that effect are said to be still extant. That great man survived this application but a short time; for he died without issue at Lindores, on the 15th of April 1488; and in him ended the first branch of that noble and illustrious house. He was remarkable for being the most learned of all the Scots nobility, and for the comeliness of his person.

328
Exinction
of one of
the branches
of the
family of
Douglas.

329
Pusillani-
mous beha-
viour of
James.

James appears to have been no stranger to the proceedings of the conspirators: but though he dreaded them, he depended upon the protection of the law, as they did upon his pusillanimity. His degeneracy in this respect is remarkable. Descended from a race of heroes, he was the first of his family who had been branded with cowardice. But his conduct at this time fully justifies the charge. Instead of vigorously supporting the execution of the laws in his own person, he shut himself up in his beloved castle of Stirling, and raised a body guard; the command of which he gave to the lord Bothwell, master of his household. He likewise issued a proclamation, forbidding any person in arms to approach the court; and Bothwell had a warrant to see the same put into execution. Though the king's proceedings in all this were perfectly agreeable to law, yet they were given out by his enemies as so many indications of his aversion to the nobility, and served only to induce them to parade, armed, about the country in more numerous bodies.

The connections entered into by James with Henry alarmed the conspirators, and made them resolve to strike the great blow before James could avail himself of an alliance that seemed to place him above all opposition either abroad or at home. The acquisition of Berwick to the crown of Scotland, which was looked upon to be as good as concluded; the marriage of the duke of Rothesay with the daughter of the dowager and sister to the consort-queen of England; and, above all, the strict harmony which reigned between James and the states of his kingdom, rendered the conspirators in a manner desperate. Besides the earl of Angus, the earls of Argyle and Lenox favoured the conspirators; for when the whole of James's convention with England is considered, and compared with after-events, nothing can be more plain, than that the success of the conspirators was owing to his English connections; and that they made use of them to affirm, that Scotland was soon to become a province of England, and that James intended to govern his subjects by an English force.—Those specious allegations did the conspirators great service, and inclined many, even of the moderate party, to their cause. They soon took the field, appointed their rendezvous, and all the south of Scotland was in arms. James continued to rely upon the authority of his parliament; and summoned, in the terms of law, the insurgents to answer at the proper tribunals for their repeated breaches of the peace. The conspirators, far from paying any regard to his citations, tore them in pieces, buffeted and otherwise maltreated the messen-

330
Is set at de-
fiance by
the conspi-
rators.

gers, and set the laws of their country at open defiance. Even north of the Forth, the heads of the houses of Gray and Drummond spread the spirit of disaffection through the populous counties of Fife and Angus; but the counties north of the Grampians continued firm in their duty.

The duke of Rothesay was then a promising youth about fifteen years of age; and the subjecting the kingdom of Scotland to that of England being the chief, if not the only cause urged by the rebels for their appearing in arms, they naturally threw their eyes upon that prince, as his appearance at their head would give strength and vigour to their cause; and in this they were not deceived. James, in the mean time, finding the inhabitants of the southern provinces were either engaged in the rebellion or at best observed a cold neutrality, embarked on board of a vessel which was then lying in the frith of Forth, and passed to the north of that river, not finding it safe to go by land to Stirling. Arriving at the castle, he gave orders that the duke of Rothesay (as foreseeing what afterwards happened) should be put under the care of one Schaw of Sauchie, whom he had made its governor, charging him not to suffer the prince upon any account to depart out of the fort. The rebels giving out that James had fled to Flanders plundered his equipages and baggage before they passed the Forth; and they there found a large sum of money, which proved to be of the utmost consequence to their affairs. They then surprised the castle of Dunbar, and plundered the houses of every man to the south of the Forth whom they suspected to be a royalist.

James was all this time making a progress, and holding courts of justice, in the north, where the great families were entirely devoted to his service, particularly the earls of Huntley, Errol, and Marshal.—Every day brought him fresh alarms from the south, which left him no farther room either for delay or deliberation. The conspirators, notwithstanding the promising appearance of their affairs, found that in a short time their cause must languish, and their numbers dwindle, unless they were furnished with fresh pretexts, and headed by a person of the greatest authority. While they were deliberating who that person should be, the earl of Angus boldly proposed the duke of Rothesay; and an immediate application was made to Schaw, the young prince's governor, who secretly favoured their cause, and was prevailed upon by a considerable sum of money to put the prince into their hands, and to declare for the rebels.

James having ordered all the force in the north to assemble, hurried to Perth (then called St John's town), where he appointed the rendezvous of his army, which amounted to 30,000 men. Among the other noblemen who attended him was the famous lord David Lindsay of the Byres (an officer of great courage and experience, having long served in foreign countries), who headed 3000 foot and 1000 horse, mostly raised in Fifeshire. Upon his approaching the king's person, he presented him with a horse of remarkable spirit and beauty, and informed his majesty, that he might trust his life to his agility and sure-footedness. The lord Ruthven, who was sheriff of Strathern, and ancestor (if we mistake not) to the unfortunate earls of Gowry, joined James at the head of 3000 well armed men.—

The

Scotland:

331
The duke
of Rothesay
put into
confinement.

332
Success of
the rebels.

333
They are
headed by
the duke of
Rothesay.

Scotland. The whole army being assembled, James proceeded to Stirling; but he was astonished, when he was not only denied entrance into the castle, but saw the guns pointed against his person, and understood, for the first time, that his son was at the head of the rebels. Schaw pretended that the duke of Rothsay had been carried off against his will: but the king's answer was, "Fye, traitor, thou hast deceived me; and if I live I shall be revenged on thee, and thou shalt be rewarded as thou hast served." James lay that night in the town of Stirling, where he was joined by all his army; and understanding that the rebels were advancing, he formed his line of battle. The earl of Athol his uncle, who was trusted by both parties, proposed an accommodation; which was accordingly effected, if we are to believe Abercromby and other historians; but we know not the terms, for none are mentioned on either side.—James is said to have failed on his part; but had there been any grounds for such a charge against him, there can scarcely be a doubt but that the rebels would have published them. That a treaty was entered into is past dispute; and the earl of Athol surrendered himself as a hostage into the hands of the rebels.

James was sensible of the advantage which public clamour gave to his enemies; and he applied to the kings of France and England, and the pope, for their interposition. His holiness named Adrian de Castello for his nuncio on that occasion; and the two kings threatened to raise troops for the service of James.—He, by a fatality not uncommon to weak princes, left the strong castle of Edinburgh, where he might have been in safety till his friends, who had dispersed themselves upon the faith of the late negotiation, could be reassembled; and crossing the Forth, he made another attempt to be admitted into the castle of Stirling; but was disappointed, and informed that the rebels were at Torwood in the neighbourhood, and ready to give him battle. He was in possession of the castle of Blackness; his admiral, Wood, commanded the Forth; and his loyal subjects in the north were upon their march to join him. Hawthornden says, that the rebels had made a show of dismissing their troops, that they might draw James into the field; and that while he remained at Blackness, he was attended by the earls of Montrose, Glencairn, and the lords Maxwell and Ruthven. To give his northern troops time to join him, he proposed a negotiation; but that was soon at an end, upon the rebels peremptorily requiring him to resign his crown to his son, that is, to themselves.

The rebels had been inured to war. They consisted chiefly of borderers, well armed and disciplined; in which they had the advantage of the king's Lowland subjects, who had not been accustomed to arms. What the numbers on both sides were does not clearly appear; but it is probable that the forces of James were superior to the rebels. They were then at Falkirk; but they soon passed the Carron, encamped above the bridge near Torwood, and made such dispositions as rendered a battle unavoidable, unless James would have dispersed his army, and gone on board Wood's ships: but he did not know himself, and resolved on a battle. He was encamped at a small brook named Sauchie-burn, near the same spot of ground where the great Bruce had defeated the English under Edward the second. The earl of Menteith, the lords

Erskine, Graham, Ruthven, and Maxwell, commanded the first line of the king's army. The second was commanded by the earl of Glencairn, who was at the head of the Westland and Highland men. The earl of Crawford, with the lord Boyd and Lindsay of Byres, commanded the rear, wherein the king's main strength consisted, and where he himself appeared in person, completely armed, and mounted upon the fine horse which had been presented to him by Lindsay.

The first line of the royalists obliged that of the rebels to give way; but the latter being supported by the Annandale men and borderers, the first and second line of the king's army were beat back to the third. The little courage James possessed had forsaken him at the first onset; and he had put spurs to his horse, intending to gain the banks of the Forth, and to go on board one of Wood's ships. In passing through the village of Bannockburn, a woman who was filling her pitcher at the brook, frightened at the sight of a man in armour galloping full speed, left it behind her; and the horse taking fright, the king was thrown to the ground, and carried, bruised and maimed, by a miller and his wife, into their hovel. He immediately called for a priest to make his confession; and the rustics demanding his name and rank, "I was (said he incautiously) your king this morning." The woman, overcome with astonishment, clapped her hands, and running to the door called for a priest to confess the king. "I am a priest (said one passing by), lead me to his majesty." Being introduced into the hovel, he saw the king covered with a coarse cloth; and kneeling by him, he asked James whether he thought he could recover, if properly attended by physicians? James answering in the affirmative, the villain pulled out a dagger, and stabbed him to the heart. Such is the dark account we are able to give of this prince's unhappy end. The name of the person who murdered him is said to have been Sir Andrew Borthwick, a priest, one of the pope's knights. Some pretend that the lord Gray, and others that Robert Stirling of Keir, was the regicide; and even Buchanan (the tenor of whose history is a justification of this murder), is uncertain as to the name of the person who gave him the fatal blow.

It is probable that the royalists lost the battle thro' the cowardice of James. Even after his flight his troops fought bravely; but they were damped on receiving the certain accounts of his death. The prince, young as he was, had an idea of the unnatural part he was acting, and before the battle he had given a strict charge for the safety of his father's person. Upon hearing that he had retired from the field, he sent orders that none should pursue him; but they were ineffectual, the rebels being sensible that they could have no safety but in the king's death. When that was certified, hostilities seemed to cease; nor were the royalists pursued. The number of slain on both sides is uncertain; but it must have been considerable, as the earl of Glencairn, the lords Sempil, Erskine, and Ruthven, and other gentlemen of great eminence, are mentioned. As to the duke of Rothsay, who was now king, he appeared inconsolable when he heard of his father's death; but the rebels endeavoured to efface his grief, by the profusion of honours they paid him when he was recognized as king.

The remorse and anguish of the young king, on reflecting

Scotland.

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Abandons
his army,
and flies.

338
is thrown
from his
horse, and
murdered.

339
Grief of his
son for his
death.

Scotland. ³⁴⁰ affecting upon the unnatural part he had acted, was inexpressible; and the noblemen who had been engaged in the rebellion became apprehensive for their own safety. The catastrophe of the unfortunate James III, however, was not yet become public; and it was thought by many that he had gone aboard some of the ships belonging to the Scottish admiral Sir Andrew Wood. James, willing to indulge hope as long as it was possible, desired an interview with the admiral; but the latter refused to come on shore, unless he had sufficient hostages for his safety. These being delivered, Sir Andrew waited upon the king at Leith. He had again and again, by messages, assured him that he knew nothing of the late king; and he had even offered to allow his ships to be searched: yet such was the anxiety of the new king, that he could not be satisfied till he had examined him in person. Young James had been long a stranger to his father, so that he could not have distinguished him easily from others. When Wood, therefore, entered the room, being struck with his noble appearance, he asked him, "Are you my father?" "I am not," replied Wood, bursting into tears; "but I was your father's true servant, and while I live I shall be the determined enemy of his murderers." This did not satisfy the lords, who demanded whether he knew where the king was. The admiral replied, that he knew not; and upon their questioning him concerning his manœuvres on the day of battle, when his boats were seen plying backwards and forwards, he told them, that he and his brother had determined to assist the king in person; but all they could do was to save some of the royalists in their ships. "I would to God, (says he), my king was there safely, for I would defend and keep him skatheless from all the traitors who have cruelly murdered him: for I think to see the day to behold them hanged and drawn for their demerits." This spirited declaration, and the freedom with which it was delivered, struck the guilty part of the council with dismay; but the fear of sacrificing the hostages procured Wood his freedom, and he was suffered to depart to his ships. When he came on board, he found his brother preparing to hang the two lords who had been left as hostages; which would certainly have been their fate, had the admiral been longer detained.

Wood had scarcely reached his ships, when the lords, calling the inhabitants of Leith together, offered them a large premium if they would fit out a sufficient force to destroy that bold pirate and his crew, as they called Wood; but the townsmen, who, it seems, did not much care for the service, replied, that Wood's ships were a match for any ten ships that could be fitted out in Scotland. The council then removed to Edinburgh, where James IV. was crowned on the 24th of June 1487.

In the month of October this year, the nobility and others who had been present at the king's coronation, converted themselves into a parliament, and passed an act by which they were indemnified for their rebellion against their late sovereign; after which, they ordered the act to be exemplified under the great seal of Scotland, that it might be producible in their justification if called for by any foreign prince. They next proceeded to the arduous task of vindicating their rebellion in the eyes of the public; and so far did they gain upon the king by the force of flattery, that he consented to sum-

mon the lords who had taken part with his father, before the parliament, to answer for their conduct. In consequence of this, no fewer than 28 lords were cited to appear at Edinburgh in the space of 40 days. The first upon the list was the lord David Lindsay, whose form of arraignment was as follows. "Lord David Lindsay of the Byres, answer for the cruel coming against the king at Bannockburn with his father, giving him counsel to have devoured the king's grace here present; and, to that effect, gave him a sword and a good horse, to fortify him against his son. Your answer hereto." Lord Lindsay was remarkable for the bluntness of his conversation and the freedom of his sentiments; and being irritated by this charge, he delivered himself in such a manner concerning the treason of the rebellious lords, as abashed the boldest of his accusers. As they were unable to answer him, all they could do was to press him to throw himself upon the king's clemency; which he refused, as being guilty of no crime. His brother, Patrick Lindsay, undertook to be his advocate, and apologized upon his knees for the roughness of his behaviour, and at last observed an informality in the proceedings of the court; in consequence of which Lindsay was released, upon entering into recognizance to appear again at an appointed day: however, he was afterwards sent prisoner by the king's order, for a whole twelvemonth, to the castle of Rothesay in the Isle of Bute. ³⁴³ Who is im-

The regicides now endeavoured to gain the public favour by affecting a strict administration of justice.

The king was advised to make a progress round the kingdom, attended by his council and judges; while, in the mean time, certain noblemen and gentlemen were appointed to exercise justice, and to suppress all kinds of disorders in their own lands and in those adjoining to them, till the king came to the age of 21. The memory of the late king was branded in the most opprobrious manner. All justices, sheriffs, and stewards, who were possessed of heritable offices, but who had taken up arms for the late king, were either deprived of them for three years, or rendered incapable of enjoying them for ever after. All the young nobility who had been disinherited by their fathers for taking arms against the late king, were, by act of parliament, restored to their several successions in the most ample manner. At last, in order to give a kind of proof to the world that they intended only to settle the state of the nation, without prejudice to the lower ranks of subjects, who did no more than follow the examples of their superiors, it was enacted, "That all goods and effects taken from burgesses, merchants, and those who had only personal estates, or, as they are called, *unlanded men*, since the battle of Stirling, were not only to be restored, but the owners were to be indemnified for their losses; and their persons, if in custody, were to be set at liberty. Churchmen, who were taken in arms, were to be delivered over to their ordinances, to be dealt with by them according to the law." The castle of Dunbar was ordered to be demolished; and some statutes were enacted in favour of commerce, and for the exclusion of foreigners. ³⁴⁴ The new parliament affects popularity.

These last acts were passed with a view to recompence the boroughs, who had been very active in their opposition to the late king. However, the lords, before they dissolved their parliament, thought it necessary

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Noble behaviour of Sir Andrew Wood.

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The regicides assemble a parliament.

Scotland. ry to give some public testimony of their disapproving the late king's connection with England. It was therefore enacted, "That as the king was now of an age to marry a noble princess, *born and descended of a noble and worshipful house*, an honourable embassy should be sent to the realms of France, Brittany, Spain, and other places, in order to conclude the matter." This embassy was to be very splendid. It was to consist of a bishop, an earl, or lord of parliament, a secretary, who was generally a clergyman, and a knight. They were to be attended by 50 horsemen; 5000*l.* was to be allowed them for the discharge of their embassy, and they were empowered to renew the ancient league between France and Scotland; and, in the mean time, a herald, or, as he was called, a *trusty squire*, was sent abroad to visit the several courts of Europe, in order to find out a proper match for the king. One considerable obstacle, however, lay in the way of this embassy. The pope had laid under an interdict all those who had appeared in arms against the late king; and the party who now governed Scotland were looked upon by all the powers of Europe as rebels and murderers. The embassy was therefore suspended for a considerable time; for it was not till the year 1491 that the pope could be prevailed upon to take off the interdict, upon the most humble submissions and professions of repentance made by the guilty parties.

In the mean time, the many good qualities which discovered themselves in the young king began to conciliate the affections of his people to him. Being considered, however, as little better than a prisoner in the hands of his father's murderers, several of the nobility made use of that as a pretence for taking arms. The most forward of these was the earl of Lenox, who with 2000 men attempted to surprise the town of Stirling; but, being betrayed by one of his own men, he was defeated, taken unawares, and the castle of Dumbarton, of which he was the keeper, taken by the opposite party. In the north, the earls of Huntley and Marshal, with the Lord Forbes, complained that they had been deceived, and declared their resolution to revenge the late king's death. Lord Forbes having procured the bloody shirt of the murdered prince, displayed it on the point of a lance, as a banner under which all loyal subjects should lift themselves. However, after the defeat of Lenox, the northern chieftains found themselves incapable of marching southwards, and were therefore obliged to abandon their enterprise.

The cause of the murdered king was next undertaken by Henry VII. of England, who made an offer to Sir Andrew Wood of five ships to revenge it. The admiral accepted the proposal; but the English behaving as pirates, and plundering indiscriminately all who came in their way, he thought proper to separate himself from them, yet without offering to attack or oppose them. Upon this, James was advised to send for the admiral, to offer him a pardon, and a commission to act against the English freebooters. Wood accepted of the king's offer; and being well provided with ammunition and artillery, he, with two ships only, attacked the five English vessels, all of which he took, and brought their crews prisoners to Leith, for which he was nobly rewarded by his majesty.

This conduct of Wood was highly resented by the king of England, who immediately vowed revenge.

The Scottish admiral's ships had been fitted out for Scotland. commerce as well as war, and Henry commanded his best sea-officer, Sir Stephen Bull, to intercept him on his return from Flanders, whither he had gone upon a commercial voyage. Wood had no more than two ships with him: the English admiral had three; and those much larger, and carrying a greater weight of metal, than the Scottish vessels. The English took their station at the island of May, in the mouth of the Frith of Forth, and, having come unawares upon their enemies, fired two guns as a signal for their surrendering themselves. The Scottish commander encouraged his men as well as he could; and finding them determined to stand by him to the last, began the engagement in sight of numberless spectators who appeared on both sides of the frith. The fight continued all that day, and was renewed with redoubled fury in the morning; but, in the mean time, the ebb-tide and a south wind had carried both squadrons to the mouth of the Tay. Here the English fought under great disadvantages, by reason of the sand-banks; and before they could get clear of them, all the three were obliged to submit to the Scots, who carried them to Dundee. Wood treated his prisoners with great humanity; and having afterwards presented them to King James, the latter dismissed them not only without ransom, but with presents to the officers and crews, and a letter to King Henry. To this Henry returned a polite answer, a truce was concluded, and all differences for the present were accommodated.

James all this time had continued to display such moderation in his government, and appeared to have the advantage of his subjects so much at heart, that they became gradually well affected to his government, and in 1490 all parties were fully reconciled. We may from thence date the commencement of the reign of James IV.; and the next year the happiness of his kingdom was completed, by taking off the pope's interdict, and giving the king absolution for the hand he had in his father's death.

Tranquillity being thus restored, the negotiations concerning the king's marriage began to take place, but met with several interruptions. In 1493, Henry VII. proposed a match between the king of Scotland and his cousin the princess Catharine. James was too much attached to France to be fond of English connections, and probably thought this match below his dignity; in consequence of which the proposal was treated with contempt. However, notwithstanding this ill success, Henry made another offer of alliance with James; and, in 1495, proposed a marriage betwixt him and his eldest daughter Margaret. This proposal was accepted: but the match seems not to have been at all agreeable to James; for, at the very time in which he was negotiating the marriage, he not only protected Perkin Warbeck, the avowed enemy and pretender to the crown of Henry, but invaded England on his account. This conduct was highly resented by the English parliament; but Henry himself forgave even this gross insult, and the marriage negotiations were once more resumed. The bride was no more than ten years and six months old; and being only the fourth degree of blood from James, it was necessary to procure a dispensation from the pope. This being obtained, a treaty of perpetual peace was concluded between the two nations.

Scotland. nations, on the 1st of July 1503, being the first that had taken place for 170 years, since the peace of Northampton, concluded between Robert I. and Edward III.

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A perpetual
peace with
that nation

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Magnifi-
cence of
the royal
nuptials.

One of the great ends which Henry had in view in promoting this marriage, was to detach James from the French interest: no sooner, therefore, was the treaty signed, than he wrote to his son-in-law to this purpose; who, however, politely declined to break with his ancient ally. On the 16th of June, the royal bride set out from Richmond in Surry, in company with her father, who gave her the convoy as far as Collewston, the residence of his mother the countess of Richmond. After passing some days there, the king resigned his daughter to the care of the earls of Surry and Northumberland, who proceeded with her to the borders of Scotland. Here a number of the company were permitted to take their leave; but those who remained still made a royal appearance. At Lamberton church they were met by James, attended by a numerous train of his nobility and officers of state. From Lamberton they proceeded to Dalkeith, and next day to Edinburgh; where the nuptials were celebrated with the greatest splendor. On this occasion, it is said that the Scots surpassed all their guests in extravagance and luxury: which must have been owing to the great intercourse and commerce which James and his subjects maintained with foreign courts and countries.

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James be-
comes a
powerful
monarch.

After the celebration of the nuptials, James appears to have enjoyed a tranquillity unknown almost to any of his predecessors; and began to make a considerable figure among the European potentates. But the magnificence of his court and embassies, his liberality to strangers and to learned men, his costly edifices, and, above all, the large sums he laid out in ship-building, had now brought him into some difficulties; and he so far attended to the advice and example of his father-in-law, that he supplied his necessities by reviving dormant penal laws, particularly with regard to wardships and old titles of estates, by which he raised large sums. Though he did this without assembling his parliament,

yet he found agents who justified those proceedings, in the same manner as Epton and Dudley did those of Henry, under the sanction of law. At last, however, touched with the sufferings of his subjects, he ordered all prosecutions to be stopped. He even went farther: for, sensible of the detestation into which his father-in-law's avarice had brought himself and his administration, he ordered the ministers who had advised him to those shameful courses to be imprisoned; and some of them, who probably had exceeded their commission, actually died in their confinement.

About this time, James applied himself, with incredible assiduity, to the building of ships; one of which, the St Michael, is supposed to have been the largest then in the world (M). He worked with his own hands in building it; and it is plain, from his conduct, that he was aspiring to be a maritime power, in which he was encouraged by the excellent seamen which Scotland then produced. The first essay of his arms by sea was in favour of his kinsman John king of Denmark. This prince was brother to Margaret queen of Scotland; and had partly been called to the throne of Sweden, and partly possessed it by force. He was opposed by the administrator, Sture, whom he pardoned after he was crowned. Sture, however, renewing his rebellion, and the Norwegians revolting at the same time, John found himself under such difficulties, that he was forced to return to Denmark; but he left his queen in possession of the castle of Stockholm, which she bravely defended against Sture and the Swedes. This heroic princess became a great favourite with James; and several letters that passed between them are still extant. The king of Denmark, next to the French monarch, was the favourite ally of James; who, early in his reign, had compromised some differences between them. It likewise appears, from the histories of the north, that both James and his father had given great assistance to his Danish majesty in reducing the Norwegians; and he resolved to become a party in the war against the Swedes, and the Lubeckers who assisted them, if the former

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Applies
himself to
maritime
affairs.

(M) Of this ship we have the following account by Lindsay of Pittscottie. "In the same year, the king of Scotland bigged a great ship, called the *Great Michael*, which was the greatest ship, and of most strength, that ever sailed in England or France. For this ship was of so great stature, and took so much timber, that, except Falkland, she wasted all the woods in Fife, which was oak-wood, by all timber that was gotten out of Norway; for she was so strong, and of so great length and breadth (all the wrights of Scotland, yea, and many other strangers, were at her device, by the king's commandment, who wrought very busily in her: but it was a year and day ere she was complete); to wit, she was twelve score foot of length, and thirty-six foot within the sides. She was ten foot thick in the wall, outted jests of oak in her wall, and boards on every side, so stark and so thick, that no cannon could go through her. This great ship cumbered Scotland to get her to the sea. From that time that she was afloat, and her masts and sails complete, with tows and anchors effeiring thereto, she was counted to the king to be thirty thousand pounds of expences, by her artillery, which was very great and costly to the king, by all the rest of her orders; to wit, she bare many cannons, six on every side, with three great bassils, two behind in her dock, and one before, with three hundred shot of small artillery, that is to say, myand and battret-falcon, and quarter-falcon, slings, pestilent serpentens, and double-dogs, with hagtor and culvering, cors-bows and hand-bows. She had three hundred mariners to sail her; she had six score of gunners to use her artillery; and had a thousand men of war, by her captain, ship-pers, and quarter-masters.

"When this ship past to the sea, and was lying in the road, the king gart shoot a cannon at her, to essay her if she was wight; but I heard say, it deared her not, and did her little skaith. And if any man believe that this description of the ship be not of verity, as we have written, let him pass to the gate of Tillibardin, and there, afore the same, ye will see the length and breadth of her, planted with hawthorn, by the wright that helped to make her. s for other properties of her, Sir Andrew Wood is my author, who was quarter-master of her; and Robert Bartyne, who was master-shipper."

former continued in their revolt. Previous to this, he sent an ambassador to offer his mediation between John and his subjects. The mediation was accordingly accepted of, and the negotiations were opened at Calmar. The deputies of Sweden not attending, John prevailed with those of Denmark and Norway to pronounce sentence of forfeiture against Sture and all his adherents. In the mean time, the siege of the castle of Stockholm was so warmly pressed, that the garrison was diminished to a handful, and those destitute of all kind of provisions; so that the brave queen was forced to capitulate, and to surrender up the fortress, on condition that she would be suffered to depart for Denmark; but the capitulation was perfidiously broken by Sture, and she was confined in a monastery.

It was on this occasion that James resolved to employ his maritime power. He wrote a letter, conceived in the strongest terms, to the archbishop of Upsal, the primate of Sweden, exhorting him to employ all his authority in favour of the king; and another letter to the Lubeckers, threatening to declare war against them, as well as the Swedes, if they jointly continued to assist the rebels. According to Hollinshed, James, in consequence of king John's application, gave the command of an army of 10,000 men to the earl of Arran, who replaced John upon his throne. Though this does not strictly appear to be truth, yet it is certain, that, had it not been for James, John must have sunk under the weight of his enemies. Sture, whose arms had made great progress, hearing that a considerable armament was fitting out in Scotland, and knowing that James had prevailed with the French king to assist John likewise, agreed to release the queen, and to conduct her to the frontiers of Denmark; where he died. By this time, James's armament, which was commanded by the earl of Arran, had set sail; but perceiving that all matters were adjusted between John and the Swedes, the ships returned sooner than James expected, "which (says he, in a very polite letter he wrote to the queen upon the occasion) they durst not have done, had they not brought me an account that her Danish majesty was in perfect health and safety." The severity of John having occasioned a fresh revolt, James again sent a squadron to his assistance, which appeared before Stockholm, and obliged the Lubeckers to conclude a new treaty.

James, having thus honourably discharged his engagements with his uncle the king of Denmark, turned his attention towards the Flemings and Hollanders, who had insulted his flag, on account of the assistance he had afforded the duke of Gueldres; as well as from motives of rapaciousness, which distinguished those traders, who are said not only to have plundered the Scots ships, but to have thrown their crews overboard to conceal their villany. James gave the command of a squadron to Barton; who put to sea, and, without any ceremony, treated all the Dutch and Flemish traders who fell into his hands as pirates, and sent their heads in hogsheads to James. Soon after, Barton returned to Scotland, and brought with him a number of rich prizes, which rendered his reputation as a seaman famous all over Europe.—James was then so much respected upon the continent, that we know of no resentment shown

either by the court of Spain, whose subjects those Netherlands were, or of any other power in Europe, for this vigorous proceeding.

The peace with England continued all the time of Henry VII. nor did his son Henry VIII. though he had not the same reason as his father to keep well with the Scots, for some time shew any disposition to break with them. A breach, however, did very soon take place, which was never afterwards thoroughly made up.

About 30 years before, one John Barton (a relation, probably, to the famous Barton) commanded a trading vessel, which was taken by two Portuguese sea-captains in the port of Sluys; and the captain, with several Scotchmen, were killed in endeavouring to defend their property. The action was esteemed cowardly as well as piratical, because it was done under the protection of a large Portuguese squadron. The ship and the remaining part of the crew, with the cargo, were carried to Portugal; from whence no redress could be obtained; and James III. granted letters of marque to John and Robert Bartons, heirs to the Barton who had been murdered. Upon the accession of James IV. to the crown of Scotland, the letters of marque were recalled, and a friendly correspondence was entered into between James and his Portuguese majesty. No redress, however, was to be had from the latter; and Robert Barton being made a prisoner, and his ship a prize, he was detained in Zealand, till James procured his deliverance, by applying in his favour to the emperor Maximilian. Sir Andrew Barton took part in the quarrel; and having obtained a like letter of marque, he made dreadful depredations on the Portuguese trade, and, according to English authors, he plundered many English ships, on pretence of their carrying Portuguese property, and made the navigation of the narrow seas dangerous to Englishmen. The court of London received daily complaints of Barton's depredations; but Henry being at this time very averse to quarrel with James, these complaints were heard with great coldness at his council-board. The earl of Surry had then two sons, gallant noblemen; and he declared to Henry's face, that while he had an estate that could furnish out a ship, or a son who was capable of commanding one, the narrow seas should not be infested. Henry could not discourage this generous offer; and letters of marque were accordingly granted to the two young noblemen, Sir Thomas and Sir Edward Howard. The prizes that Barton had taken had rendered his ships immensely rich, consequently they were heavy laden, and unfit for fighting; while we may easily suppose, that the ships of the Howards were clean, and of a superior force in every respect to those of Barton. After encountering a great deal of foul weather, Sir Thomas Howard came up with the Lyon, which was commanded by Sir Andrew Barton in person; and Sir Edward fell in with the Unicorn, Barton's other ship. The event was such as might be expected from the inequality of the match. Sir Andrew Barton was killed, while he was animating, with his whistle, his men to hold out to the last; and both the Scotch ships being taken, were carried in triumph to London, with their crews prisoners.

E R R A T A.

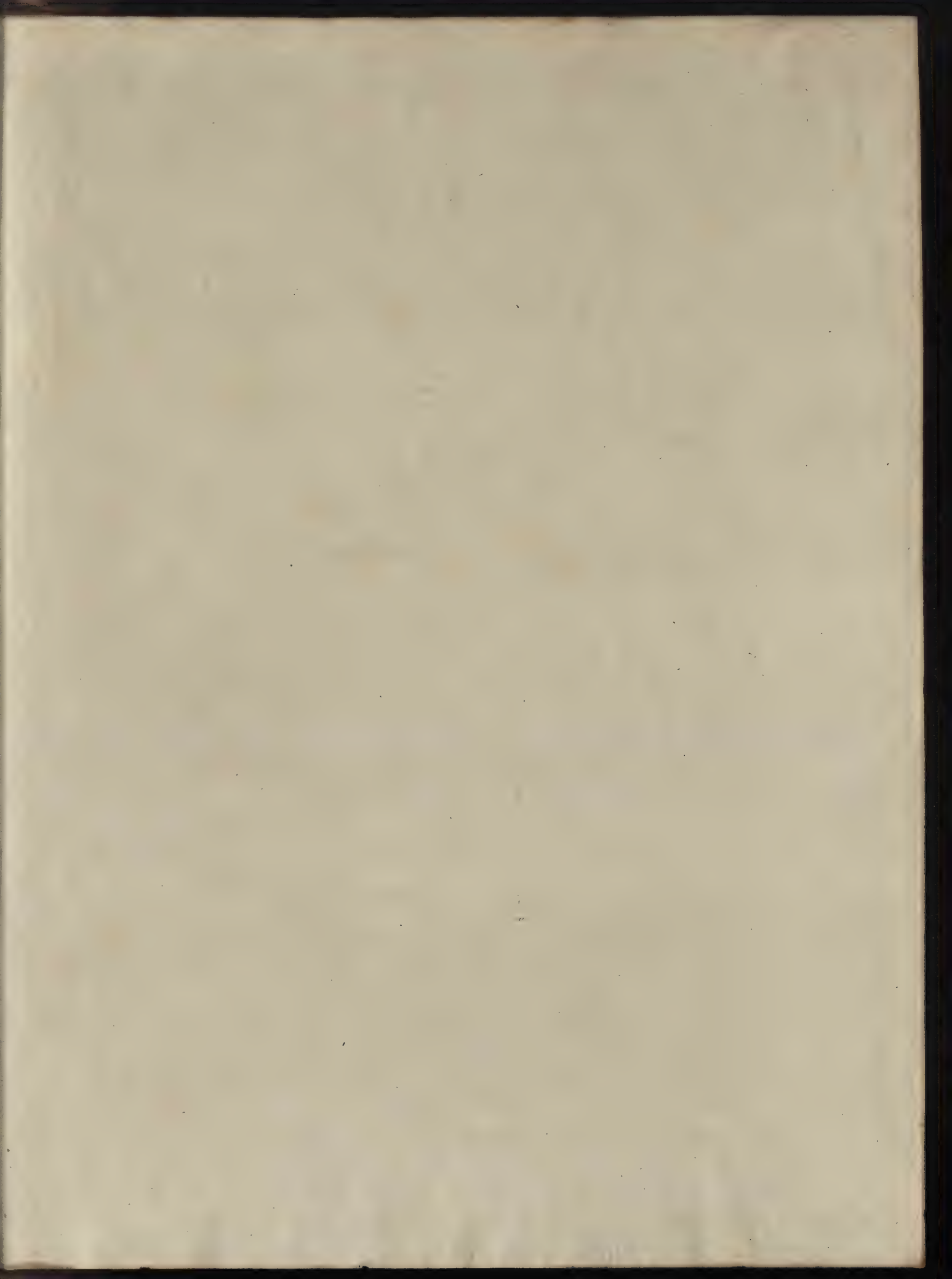
- Page 60. col. 1. line 30. For *retraſſerent*, read *retraſſarent*.
 62. — 1. *dele*, at the end of line 14 from the bottom.
 64. — 1. line 9. For *bat*, read *pot*.
 302. — 2. — 18. For *Mouſſet*, read *Maiſſons*.
 463. — 2. — 3. from the bottom. For *excite*, read *execute*.
 465. — 2. — 4. from the bottom. For $\varphi f \times \frac{CD}{CA}$ read $\varphi = f \times \frac{CD}{CA}$.
 466. — 1. — 45. For *meet*, read *aſ*.
 470. — 2. — 32. For *conſtruction*, read *conſideration*.
 473. — 1. — 45. For *ſinenefs*, read *firmneſs*.
 476. — 2. — 7. For *on*, read *or*.
 479. — 1. — 2. from bottom. For *Bleſ*, read *Bled*.
 482. — 1. — 29. For *Teloſa*, read *Tilia*.
 Do. do. — 53. For *hatchet*, read *hatchel*.
 484. — 1. — 8. For *hatchet*, read *hatchel*.
 486. — 1. — 16. For *cut*, read *caſt*.
 — — — 47. For *ling then*, read *lengthen*.
 505. — 1. — 1. For *proportions*, read *propoſitions*.
 506. — 2. — 12. For $\int \frac{A.CA}{CP}$ read $\int \frac{A.CA^2}{CP}$.
 508. — 2. — 11. from the bottom. For *drain*, read *drum*.
 509. — 1. — 20. For \pm , read $=$.
 — — 2. — 17. For *production*, read *pendulum*.
 518. — 2. — 33. For *impreſſion*, read *impulſion*.
 519. — 2. — 57. After A, *dele Therefore m v, which we have*.
 523. — 2. — 30. For *though*, read *then*.

N. B. In the article ROTATION, the ſmall Italic \int , which has been inadvertently uſed inſtead of the large \int , marks a fluent, or the ſum of fluxionary quantities.

DIRECTIONS FOR PLACING THE PLATES OF VOL. XVI.

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